



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 3, 2004

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

ATTENTION: Mr. Mike Bell
NCDOT Coordinator

Dear Sir:

Subject: **Nationwide 23 Permit Application** for the Replacement of Bridge No. 42 over Neuse River Overflow on NC 111, Wayne County, Federal Aid Project No. BRSTP-111(5), State Project No. 8.1331701, TIP B-3711, Division 4.

Please find enclosed three copies of the project planning report for the above referenced project. Bridge No. 42 will be replaced in the existing location with a cored slab bridge, 110 feet in length with a 32-foot, 10-inch clear roadway width. The bridge will have two 12.0-foot travel lanes and 4-foot, 5-inch lateral offsets on each side. The new approach roadway will include two 12-foot travel lanes, and 8-foot shoulders on each side, four feet of which will be paved. A design speed of 60 mph will be provided.

There will be 0.12 acres of permanent jurisdictional wetland impacts associated with this project. There will be temporary impacts due to construction of an on-site detour consisting of fill in wetlands. There will be no permanent surface water impacts.

The Stream Crossing Guidelines for Anadromous Fish Passage will be implemented, as applicable.

The bridge will be built using top-down construction. No causeway or work pad will be needed, and thus, there will be no temporary impacts from construction access.

Bridge Demolition

Bridge No. 42 is a six span bridge composed of a reinforced concrete deck with an asphalt-wearing surface on steel I-beams. The existing structure is 104 feet long with a 28-foot clear roadway width. Due to the structural components of the bridge, the maximum amount of temporary fill that could be dropped into the "Waters of the United States" is eight cubic yards. All measures will be taken to avoid any temporary fill from entering Waters of the U.S. Best Management Practices for Bridge Demolition and Removal will be implemented.

As noted in the project's CE document, NCDOT will observe an in-stream construction moratorium from February 15 to June 15. This moratorium will include bridge demolition activities that could result in minor amounts of bridge material entering the surface waters.

Mitigation

Compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be provided by the Ecosystem Enhancement Program (EEP). The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloging unit. The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. The remaining, unavoidable impacts to 0.12 acre of jurisdictional wetlands will be offset by compensatory mitigation provided by the EEP. The letter requesting mitigation from EEP was sent on April 16, 2004.

Federally Protected Species

As of January 29, 2003, the United States Fish and Wildlife Service (USFWS) lists one federally protected species for Wayne County. The red-cockaded woodpecker (*Picoides borealis*) is listed as endangered. This project CE's Biological Conclusion for the red-cockaded woodpecker remains: No Effect.

Regulatory Approvals

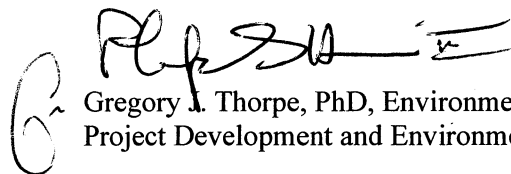
Section 404 Permit: This project is being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit but propose to proceed under a Nationwide 23 as authorized by a Nationwide Permit 23 (67 FR 2020; January 15, 2002). The NCDOT requests that replacement of Bridge No. 42 be authorized by Nationwide Permit 23.

Section 401 Permit: We anticipate 401 General Certification number 3403 will apply to this project. In accordance with 15A NCAC 2H, Section .0500(a) we are providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their review.

Neuse Buffer Rules: Bridge No. 42 lies within the Neuse River Basin. However, the Neuse River Overflow does not appear on either a soil survey map or USGS quad map. Therefore, this project is not subject to the Neuse Buffer Rules.

The project is currently scheduled to be let in December 2004. You may view a copy of this permit application on the NCDOT website at: <http://www.ncdot.org/planning/pe/naturalunit/Permit.html>. The NCDOT appreciates your continued assistance with this project. If you have any questions or need additional information, please contact Mr. Chris Underwood at (919) 715-1451.

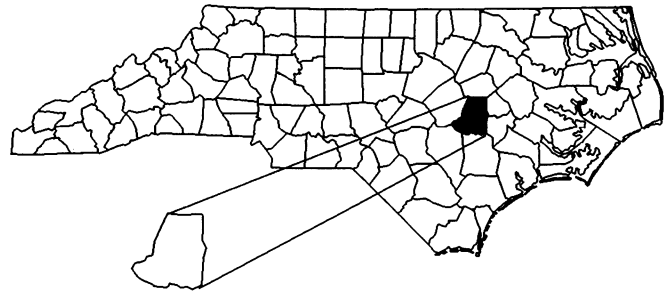
Sincerely,



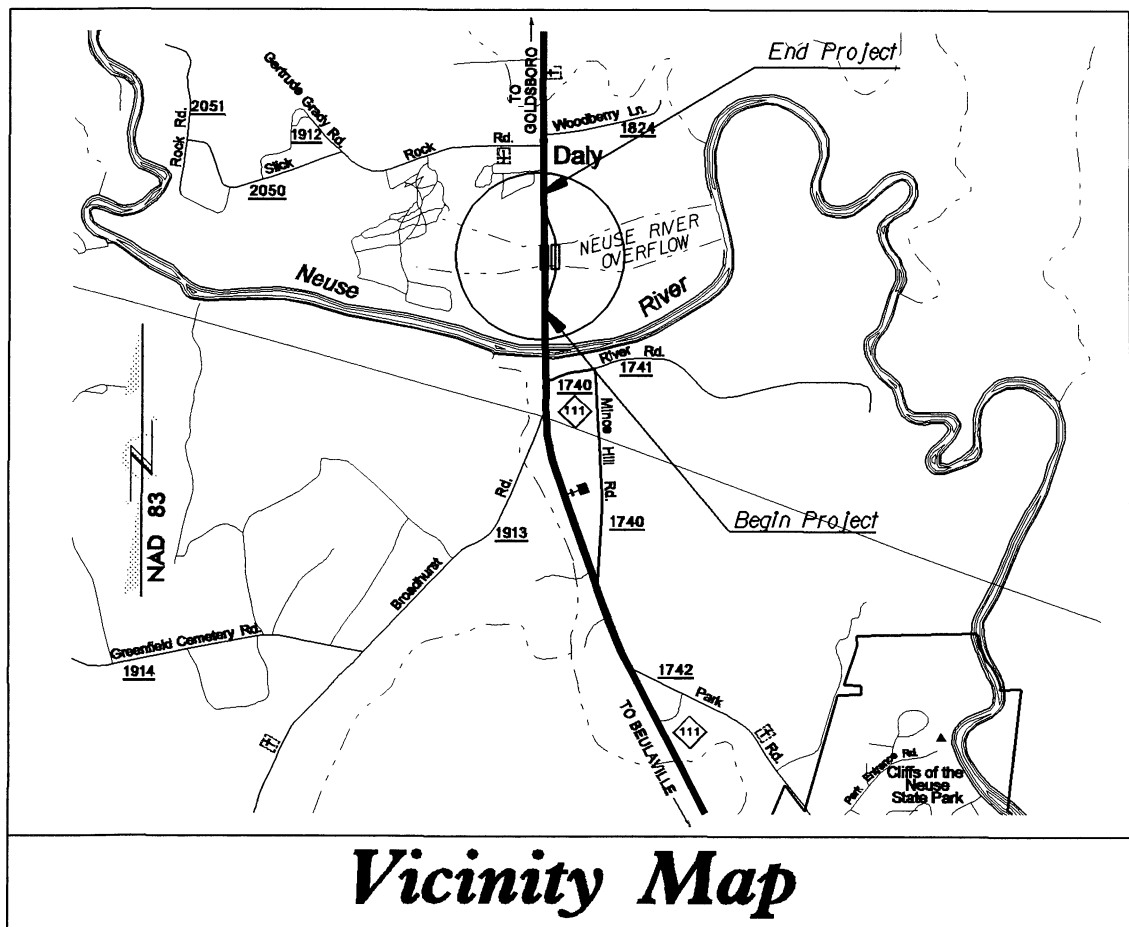
Gregory J. Thorpe, PhD, Environmental Management Director
Project Development and Environmental Analysis Branch

cc: Mr. John Hennessy, Division of Water Quality (7 copies)
Mr. Travis Wilson, NCWRC
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environment
Mr. J.H. Trogon, P.E., Division Engineer
Mr. Jamie Shern, DEO
Mr. David Franklin, USACE, Wilmington (Cover Letter Only),
Mr. John Wadsworth, P.E.

NORTH CAROLINA



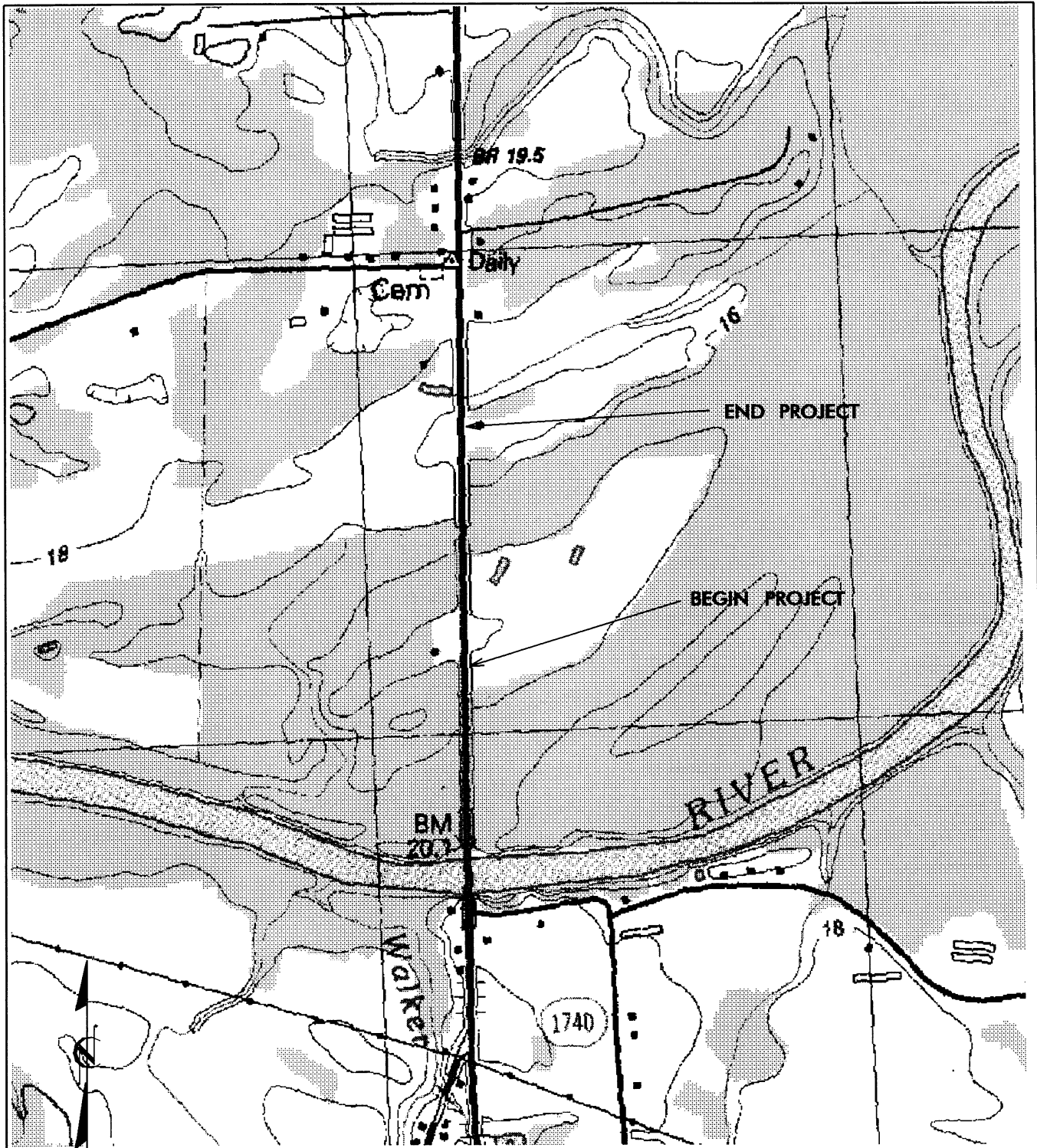
WAYNE COUNTY



VICINITY MAPS

NCDOT
DIVISION OF HIGHWAYS
WAYNE COUNTY
PROJECT: 33251.1.1 (B-3711)

REPLACE BRIDGE NO. 42 ON NC111
OVER THE NEUSE RIVER OVERFLOW



SCALE: 1" = 1000'

SITE MAP

NCDOT

DIVISION OF HIGHWAYS

WAYNE COUNTY

PROJECT: 33251.1.1 (B-3711)

REPLACE BRIDGE NO. 42 ON NC111
OVER THE NEUSE RIVER OVERFLOW

SHEET 2 OF 7 12/19/03

WETLAND LEGEND

	WETLAND BOUNDARY		PROPOSED BRIDGE
	WETLAND		PROPOSED BOX CULVERT
	DENOTES FILL IN WETLAND		PROPOSED PIPE CULVERT 12"-48" PIPES 54" PIPES & ABOVE
	DENOTES FILL IN SURFACE WATER	(DASHED LINES DENOTE EXISTING STRUCTURES)	
	DENOTES FILL IN SURFACE WATER (POND)		SINGLE TREE
	DENOTES TEMPORARY FILL IN WETLAND		WOODS LINE
	DENOTES EXCAVATION IN WETLAND		DRAINAGE INLET
	DENOTES TEMPORARY FILL IN SURFACE WATER		ROOTWAD
	DENOTES MECHANIZED CLEARING		RIP RAP
	FLOW DIRECTION		ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE
	TOP OF BANK		PREFORMED SCOUR HOLE
	EDGE OF WATER		LEVEL SPREADER (LS)
	PROP. LIMIT OF CUT		DITCH / GRASS SWALE
	PROP. LIMIT OF FILL		
	PROP. RIGHT OF WAY		
	NATURAL GROUND		
	PROPERTY LINE		
	TEMP. DRAINAGE EASEMENT		
	PERMANENT DRAINAGE EASEMENT		
	EXIST. ENDANGERED ANIMAL BOUNDARY		
	EXIST. ENDANGERED PLANT BOUNDARY		
	WATER SURFACE		
	LIVE STAKES		
	BOULDER		
	COIR FIBER ROLLS		

NCDOT
DIVISION OF HIGHWAYS
WAYNE COUNTY
PROJECT: 33251.1.1 (B-3711)

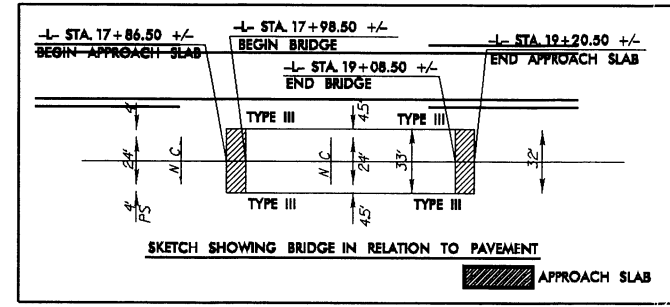
**REPLACE BRIDGE NO. 42 ON NC111
OVER THE NEUSE RIVER OVERFLOW**

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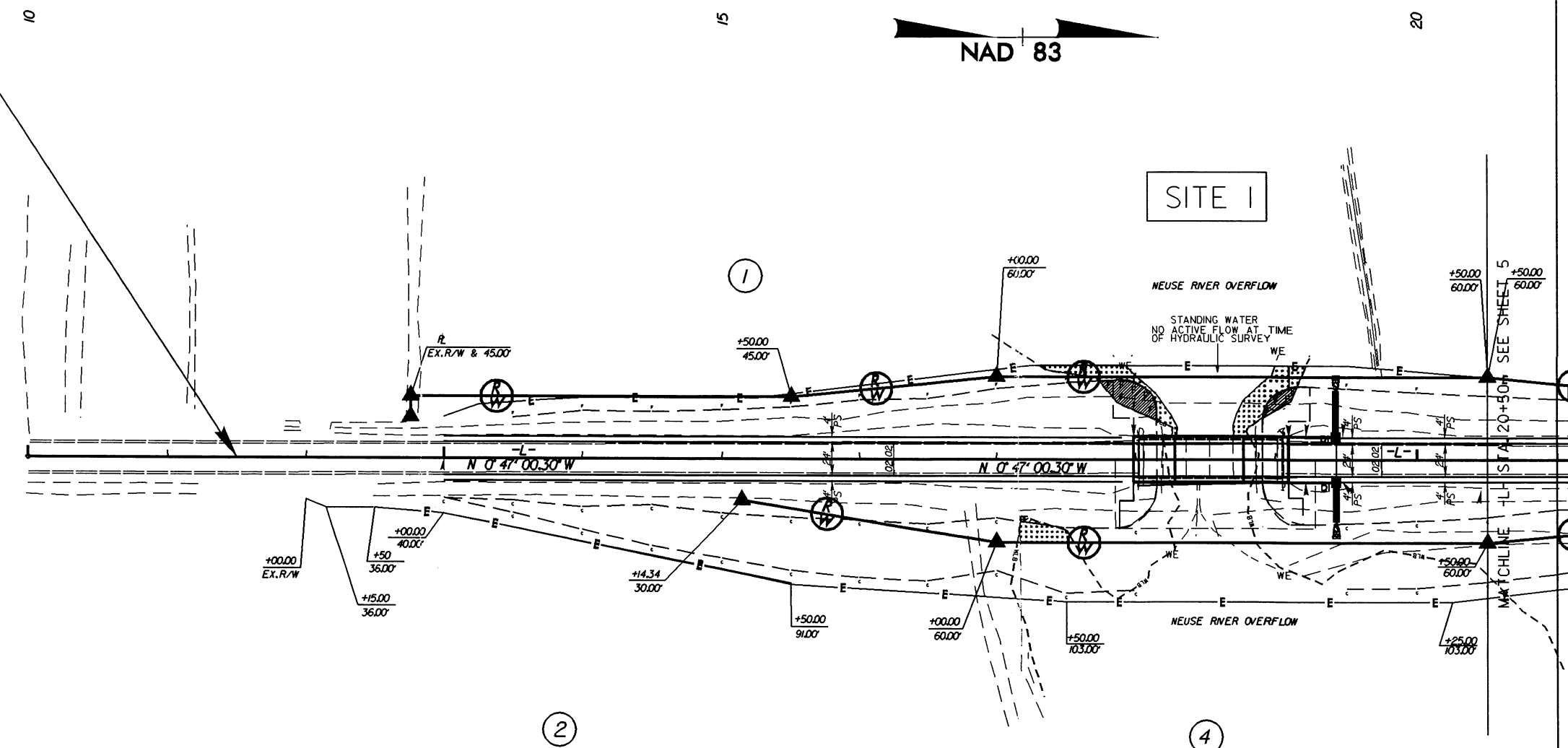
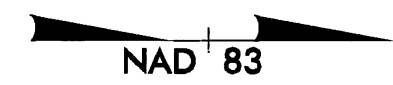
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3711	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



-L- STA. 11+50.00 BEGIN STATE PROJECT NO. B-3711
-L- STA. 11+50.00 BEGIN F.A. PROJECT BRSTP-111(5)

SEE SHEET 6 FOR -L- PROFILE



- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

SCALE 1in = 50 ft

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-L-

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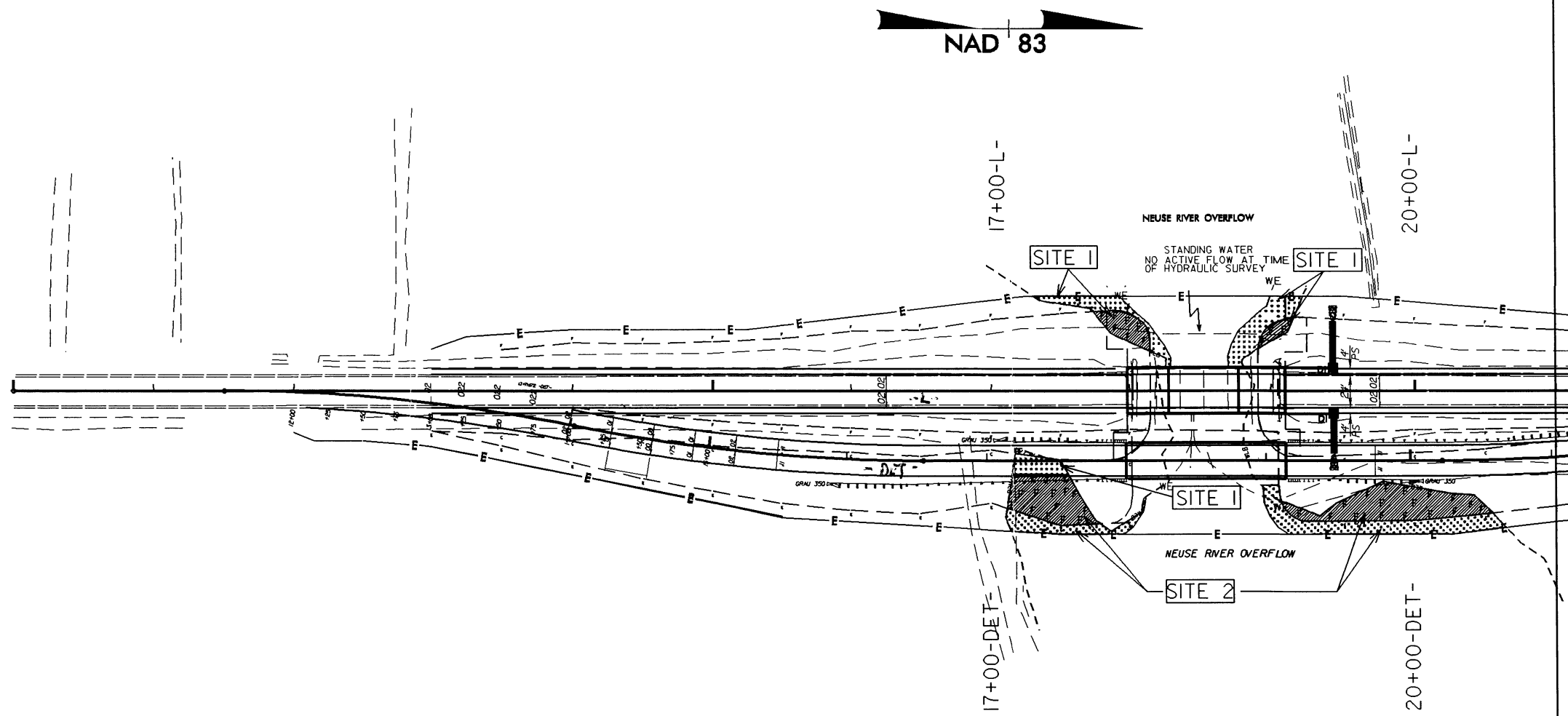
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-3711	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

- F

DENOTES FILL IN WETLAND
- *

DENOTES MECHANIZED CLEARING



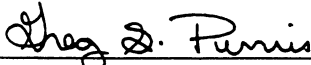
SCALE: 1in = 50 ft

NC 111
Wayne County
Replace Bridge No. 42 over Neuse River Overflow
Federal-Aid Project No. BRSTP-111(5)
State Project No. 8.1331701
T.I.P. No. B-3711

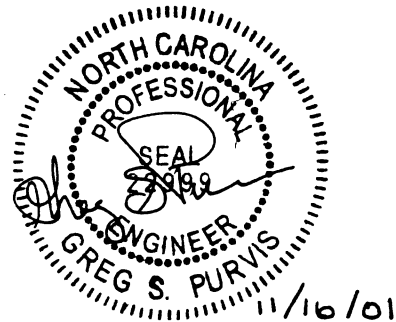
CATEGORICAL EXCLUSION

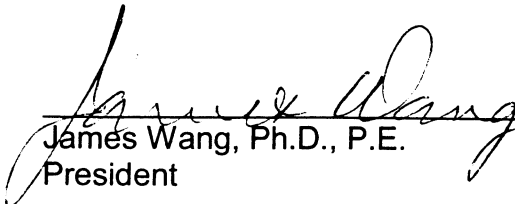
November 2001

Document Prepared by:
Wang Engineering Company, Inc.



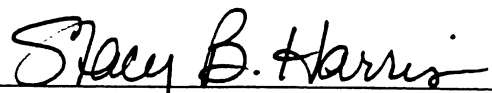
Greg S. Purvis, P.E.
Project Manager





James Wang, Ph.D., P.E.
President

For the North Carolina Department of Transportation



Stacy B. Harris, P.E.
Project Manager
Consultant Engineering Unit

PROJECT COMMITMENTS

**NC 111
Wayne County
Replace Bridge No. 42 Over Neuse River Overflow
Federal-Aid Project No. BRSTP-111(5)
State Project No. 8.1331701
T.I.P. No. B-3711**

In addition to the standard Nationwide Permit No. 23 Conditions, the General Nationwide Permit Conditions, Section 404 Only Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for Bridge Demolition and Removal, NCDOT's Guidelines for Best Management Practices for the Protection of Surface Waters, General Certification Conditions, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Project Development & Environmental Analysis

Mitigation shall be provided for any unavoidable wetland losses.

Roadway Design, Hydraulic Unit, and Division Engineer

The Neuse River Buffer Rules will be implemented during the design, construction and maintenance of this project.

The Stream Crossing Guidelines for Anadromous Fish Passage will be implemented, as applicable.

An in-water construction moratorium will be in effect from February 15 to June 15.

No deck drainage will be allowed to discharge directly into the water, main channel or Zone 1 (30 feet (nine meters) from the channel banks).

WETLAND PERMIT IMPACT SUMMARY											
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	18+53.5-L-	110FT BRIDGE	0.02			0.04					
2	18+56.5-DET-	110FT DETOUR BRIDGE		0.09		0.06					

NCDOT

DIVISION OF HIGHWAYS WAYNE COUNTY

PROJECT 33251.1.1 (B-3711)

REPLACE BRIDGE NO. 42 ON NC111
OVER THE NEUSE RIVER OVERFLOW

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	LEONARD KEITH SASSER	2346 NC111 SOUTH GOLDSBORO, NC 27534
3	LEAH H. BEST	483 ST. JOHN CHURCH ROAD GOLDSBORO, NC 27534
4	BRYANT PRICE	2393 HWY 111 SOUTH GOLDSBORO, NC 27534

NCDOT

DIVISION OF HIGHWAYS

WAYNE COUNTY

PROJECT: 33251.1.1 (B-3711D)

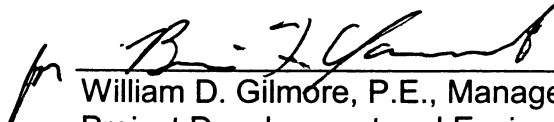
**REPLACE BRIDGE NO. 42 ON NC111
OVER THE NEUSE RIVER OVERFLOW**

NC 111
Wayne County
Replace Bridge No. 42 over Neuse River Overflow
Federal-Aid Project No. BRSTP-111(5)
State Project No. 8.1331701
T.I.P. No. B-3711

CATEGORICAL EXCLUSION
UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROVED:

12.3.01
DATE


William D. Gilmore, P.E., Manager
Project Development and Environmental
Analysis Branch, NCDOT

12-3-01
DATE


for Nicholas L. Graf, P.E.
Division Administrator, FHWA

**NC 111
Wayne County
Replace Bridge No. 42 Over Neuse River Overflow
Federal-Aid Project No. BRSTP-111(5)
State Project No. 8.1331701
T.I.P. No. B-3711**

INTRODUCTION: The replacement of Bridge No. 42 is included in the 2002-2008 North Carolina Department of Transportation (NCDOT) Transportation Improvement Program (T.I.P.) and the Federal-Aid Bridge Replacement Program. The location is shown in Figure 1. No substantial environmental impacts are anticipated. The project is classified as a Federal "Categorical Exclusion."

I. PURPOSE AND NEED

Bridge Maintenance Unit records indicated the bridge has a sufficiency rating of 12.2 out of a possible 100 for a new structure. The bridge is considered functionally obsolete and structurally deficient. The replacement of Bridge No. 42 will result in safer and more efficient traffic operations.

II. EXISTING CONDITIONS

NC 111 is classified as a rural major collector. Land use in the project area is predominantly woodlands and agriculture.

Bridge No. 42 was constructed in 1964. The existing structure is 104 feet (31.2 meters) in length, which consist of six spans with the maximum span at approximately 18 feet (5.4 meters). The clear roadway width is 28 feet (8.4 meters), providing two ten-foot (three meters) travel lanes with four-foot (1.2 meters) shoulders. The superstructure consists of a reinforced concrete floor on steel I-beams with an asphalt wearing surface. The substructure is a spill through design. The interior bents consist of timber caps on timber piles. The bed to crown height is 12 feet (3.6 meters). The posted weight limit is 24 tons (21.8 metric tons) for single vehicles (SV) and 30 tons (27.2 metric tons) for truck-tractors semi-trailers (TTST).

The existing bridge and approaches on NC 111 is tangent. The approach roadway width is 24 feet (7.2 meters) providing two ten-foot (three meters) travel lanes with two foot (0.6 meters) paved shoulders, and approximately seven-foot (2.1 meters) grassed shoulders.

The estimated 2001 average daily traffic volume is 6,400 vehicles per day (vpd). The projected traffic volume is expected to increase to 10,500 vpd by the design year 2025. The volumes include one percent TTST and three percent dual tired vehicles.

There is no posted speed limit in the area of the bridge, so the statutory 55 miles per hour (mph) (90 kilometers per hour [km/h]) speed limit is used.

NC 111 is not a designated bicycle route and there are no indications that an unusual number of bicyclists are using this route.

Eastern Wayne Sanitary District owns a 16" (40 centimeters) DIP waterline on the east side of the project. Underground telephone cables, owned by BellSouth, exist on the east and west

side of the project south of the bridge; they both go aerial at the bridge but the east side cables return underground while the west side stays aerial. Underground fiber optic lines on the west side of the project go aerial at the bridge and continue on the north side. Power lines owned by CP&L are aerial and on the west side of the project. There are underground cable television lines on the west side of the project south of the bridge that go aerial at the bridge and continue north. Utility impacts are anticipated to be low.

There was one accident reported for the three-year period of January 1, 1997 to December 31, 1999.

Four school buses cross this bridge twice daily.

III. ALTERNATIVES

A. Project Description

The proposed structure will provide a 33-foot (9.9 meters) clear roadway width to allow for two 12-foot (3.6 meters) travel lanes with 4.5-foot (1.35 meters) shoulders. The proposed approach roadway will consist of a 24-foot (7.2 meters) travel-way providing for two 12-foot (3.6 meters) travel lanes with eight-foot (2.4 meters) shoulders including four-foot (1.2 meters) paved shoulders. The design speed will be 60 mph (100 km/h).

Based on a preliminary hydraulic analysis, Bridge No. 42 will be replaced with a cored slab bridge approximately 110 feet (33 meters) in length with a spill through design. The opening size of the proposed structure may increase or decrease as necessary to accommodate peak flows as determined from a more detailed hydraulic analysis to be performed during the final design phase of the project.

B. Reasonable and Feasible Alternatives

Two (2) reasonable and feasible alternatives studied for replacing the existing bridge are described below.

Alternate A (Preferred) replaces the bridge at the existing location. During construction, traffic would be maintained by a temporary on-site detour. The temporary detour structure will be a temporary bridge approximately 305 feet (91.5 meters) in length, located east of the existing bridge. The length of approach work will be approximately 475 feet (142.5 meters) on the south side of the bridge and approximately 487 feet (146.1 meters) on the north side of the bridge.

Alternate B replaces the bridge at the existing location. During construction, traffic would be maintained by an off-site detour route along SR 1730, SR 1731, and NC 55 that is approximately ten miles (16 kilometers [km]) in length. The length of approach work will be approximately 399 feet (119.7 meters) on the south side of the bridge and approximately 398 feet (119.4 meters) on the north side of the bridge.

A road user analysis was performed based on 6,800 vpd for construction year 2003 and an average of ten miles (16 km) of indirect travel. The cost of additional travel will be approximately \$8.1 million dollars during a twelve-month construction period.

C. Alternatives Eliminated From Further Study

The **"Do-Nothing" Alternative** will eventually necessitate removal of the bridge. This is not desirable due to the traffic service provided by NC 111.

Investigation of the existing structure by the Bridge Maintenance Unit indicates the rehabilitation of the old bridge is not feasible due to its age and deteriorated condition.

D. Preferred Alternate

Alternate A, replacing the bridge at the existing location is the preferred alternate. Alternate A was selected because of the high road user cost and high traffic volumes associated with Alternate B.

IV. ESTIMATED COST

The estimated costs, based on current 2001 prices, are as follows:

	Alternate A (Preferred)	Alternate B
Structure Removal (existing)	\$ 25,000	\$ 25,000
Structure (proposed)	235,950	235,950
Detour Structure and Approaches	459,300	0
Roadway Approaches	356,350	330,350
Miscellaneous and Mobilization	484,400	266,700
Engineering and Contingencies	239,000	142,000
ROW/Const. Easements/Utilities	49,300	26,300
TOTAL	\$1,849,300	\$1,026,300

The estimated cost of the project, as shown in the 2002-2008 Transportation Improvement Program, is \$520,000 including \$45,000 for right-of-way and \$475,000 for construction.

V. NATURAL RESOURCES

A. Methodology

Materials and research data in support of this investigation have been derived from a number of sources including applicable U.S. Geological Survey (USGS) topographic mapping (Southeast Goldsboro, NC 7.5 minute quadrangle), U.S. Fish and Wildlife Service (FWS) National Wetlands Inventory (NWI) mapping (7.5 minute quadrangle), U.S. Department of Agriculture Soils, Conservation Service soils mapping (USDA 1974), and mapping depicting proposed construction impacts for each alternative (scale 1:2400).

The site was visited on January 9, 2001. Weather during the site visit was cold and sunny. The project corridor was walked and visually surveyed for substantial features. For purposes of this evaluation, the project corridor was assumed to be approximately 1100 feet (330 meters) in length and 250 feet (75 meters) in width to ensure proper coverage of the alternates. For this report, impact calculations are based on a right-of-way width of 100 feet

(30 meters). Actual impacts will be limited to cut-fill boundaries and are expected to be less than those shown for right-of-way. Special concerns evaluated in the field include 1) potential habitat for protected species and 2) wetlands and water quality protection in and adjacent to Neuse River Overflow.

Plant community descriptions are based on a classification system utilized by North Carolina Natural Heritage Program (NHP) (Schafale and Weakley 1990). When appropriate, community classifications were modified to better reflect field observations. Vascular plant names follow nomenclature found in Radford *et al.* (1968) with exceptions for updated nomenclature. Jurisdictional areas were evaluated using the three-parameter approach (hydrophytic vegetation, hydric soils, wetland hydrology) following U.S. Army Corps of Engineers (COE) delineation guidelines (DOA 1987). Jurisdictional areas were characterized according to a classification scheme established by Cowardin *et al.* (1979). Habitat used by terrestrial wildlife and aquatic organisms, as well as expected population distributions, were determined through field observations, evaluation of available habitat, and supportive documentation (Martof *et al.* 1980, Webster *et al.* 1985, Menhinick 1991, Potter *et al.* 1980, Hamel 1992, Palmer and Braswell 1995, Rohde *et al.* 1994). Water quality information for area streams and tributaries was derived from available sources (DWQ 1998a, DWQ 1998b). Quantitative sampling was not undertaken to support existing data.

The Neuse River flows approximately 7.3 miles (11.7 km) south of Goldsboro in Wayne County (Figure 1). The floodplain of the Neuse River averages approximately 3.5 miles (5.6 km) in width within this reach. The project corridor is located at the crossing of Mill Creek Road (NC 111) and Neuse River Overflow which is one of several depressional features located throughout this region of the Neuse River floodplain that store water during high rainfall or flooding events. Although no stream channel was identified within the project corridor, the Neuse River Overflow does contain hydric soils, hydrophytic vegetation, and depressional features subject to frequent flooding. Bridge No. 42 spans these depressional features as well as the adjacent side-slopes described as the Neuse River Overflow. The project corridor primarily supports a mature bottomland forest with a well-developed canopy and a well-defined understory.

B. Physiography and Soils

The project corridor is located in the Black Creek geologic formation within the Upper Coastal Plain physiographic province of North Carolina. The Black Creek geologic formation formed approximately 66-96 million years ago by alluvial deposition subject to inundation and exposure to a series of repeated advances and retreats of ancient oceans as sea level rose and fell. The alluvial deposition coupled with sea level rise lead to a high diversity of soil types within this geologic formation.

Topography in the Coastal Plain is described as low-lying, flat to gently rolling with steeper gradients apparent as permanent stream channels approach. The project corridor is located within the Neuse River floodplain where elevations and topography climb gradually and areas are subject to regular flooding. Elevations within the project corridor range from a low of 45 feet (13.5 meters) National Geodetic Vertical Datum (NGVD) in Neuse River Overflow to a high of approximately 65 feet (19.5 meters) NGVD as elevations rise away from the depression (USGS Southeast Goldsboro, NC quadrangle).

Only one soil series has been mapped throughout the entire project corridor. Kinston loam (*Typic Fluvaquents*) has been mapped throughout the project corridor. The Kinston loam is a nearly level, poorly drained soil typically found on low floodplains. According to the United States Department of Agriculture (USDA 1974), these soils formed in recent alluvium. They have moderate permeability and a high available water capacity. This soil is prone to very frequent flooding. The seasonal high water table is at the surface (USDA 1974). This soil type is typically forested and due to frequent flooding is not commonly used for agricultural or development purposes. Kinston loam is listed as a hydric soil in Wayne County (USDA 1997).

C. Water Resources

1. Surface Waters

The Neuse River Basin, with headwaters originating northwest of Durham, is North Carolina's third largest river basin and includes a total area of 6,235 square miles (16,148.6 square kilometers). The project corridor is located within sub-basin 03-05-05 of the Neuse River Basin (DWQ 1998b), which is part of USGS hydrologic unit 03020202 of the Mid-Atlantic/Gulf Region. Waters within this river basin are subject to riparian buffer rules, which are discussed in section E.3. The Neuse River Overflow is located approximately 0.7 mile (1.1 km) from the Neuse River channel. The structure targeted for replacement (Bridge No. 42) spans a bottomland hardwood forest with no direct involvement of streams or tributaries. No other streams or tributaries exist within the project corridor.

2. Stream Characteristics

Classifications are assigned to waters of the State of North Carolina based on the existing or contemplated best usage of various streams or segments of streams in the basin. No streams or tributaries were identified within the project corridor; however, downstream reaches of the Neuse River maybe directly effected by the proposed construction associated with this bridge. While no best usage classification has been assigned to this reach of the Neuse River, a best usage classification of **C NSW** has been assigned to adjacent tributaries to the Neuse (DWQ 1998a). The designation Class **C** uses include aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. Secondary recreation refers to human body contact with waters on an infrequent or incidental basis. The **NSW** classification refers to nutrient sensitive waters, which require limitations on nutrient inputs. No designated High Quality Waters (**HQW**), Outstanding Resource Waters (**ORW**), Water Supply I (**WS-I**), or Water Supply II (**WS-II**) waters occur within one mile (1.6 km) of the project corridor.

The Division of Water Quality (DWQ) has initiated a whole-basin approach to water quality management for the 17 river basins within the state. Water quality for the proposed project corridor is summarized in the basinwide water quality plan (DWQ 1998b). Water quality for individual streams is based on chemical, benthic, and fish monitoring stations spread throughout the basin. Neuse River Overflow does not have a waterbody use support rating; however, the portion of the Neuse River closest to the Neuse River Overflow received a use support rating of **Support Threatened**. DWQ defines **Support Threatened** as indicating that a water body is currently fully supporting the designated best usage classification but may not in the future unless pollution prevention or control action is taken.

The leading potential sources of pollution in this sub-basin include both point and non-point sources. Point source activities that may impact water quality involve major municipalities within the sub-basin such as waste water treatment plants. This sub-basin (03-05-05) supports four major point-source dischargers and ten minor dischargers. The nearest major point-source discharger is located approximately 5.5 miles (8.8 km) upstream of the project corridor (Goldsboro Wastewater Treatment Plant). Total permitted flow for this facility is 10.1 million gallons per day (38.2 million liters per day). Minor point source dischargers include smaller wastewater and stormwater facilities located throughout the sub-basin. Total permitted flow for minor dischargers is 1.2 million gallons per day (4.6 million liters per day) (DWQ 1998b).

Primary non-point source pollution concerns that may impact water quality include those associated with agricultural practices such as fecal coliform bacteria, sedimentation, and increased nutrient levels in surface waters. According to DWQ (1998b), non-point source impacts from agriculture have been evident throughout the smaller streams within this sub-basin. However, the Neuse River in this area has received **Moderate to Good** water quality ratings since 1983 (DWQ 1998b).

3. Anticipated Impacts

In order to protect the water quality and aquatic life in the area affected by this project, the NCDOT and all potential contractors will follow appropriate guidelines for bridge demolition and removal. These guidelines are presented in three NCDOT documents entitled "Pre-Construction Guidelines for Bridge Demolition and Removal", "Policy: Bridge Demolition and Removal in Waters of the United States", and "Best Management Practices for Bridge Demolition and Removal" (all documents final as of 9/20/99). Guidelines followed for bridge demolition and removal are in addition to those implemented for Best Management Practices for the Protection of Surface Waters.

Dropping any portion of the structure into waters of the United States should be avoided unless there is no other practical method of removal. In the event that no other practical method is feasible, a worst-case scenario is assumed for calculations of fill entering waters of the United States. There is potential for components of the concrete deck and interior timber bents of Bridge No. 42 to be dropped into waters of the United States. The resulting temporary fill is calculated to be approximately eight cubic yards (six cubic meters). NCDOT's Best Management Practices for Bridge Demolition and Removal (BMP-BDR) must be applied for, for the removal of this bridge.

Aquatic life that is not very mobile could be harmed when components of the bridge enter the water. Species that filter feed, as well as those species that feed upon them, could be negatively impacted by increased sedimentation. Although submerged aquatic vegetation is not prevalent in the project area, continued sedimentation could negatively impact such species if present by obstructing or reducing the amount of sunlight entering the water.

Under the guidelines presented in the documents noted in the first paragraph of this section, work done in the water for this project would fall under Case 2, which states that no work shall be performed in the water during moratorium periods associated with fish migration, spawning, and larval recruitment into nursery areas.

Erosion and sedimentation from temporary construction impacts will be minimized through implementation of a stringent erosion control schedule and the use of best management practices. The contractor will follow contract specifications pertaining to erosion control measures as outlined in 23 CFR 650 Subpart B and Article 107-13 entitled "Control of Erosion, Siltation, and Pollution" (NCDOT, Specifications for Roads and Structures). These measures include the use of dikes, berms, silt basins, and other containment measures to control runoff; elimination of construction staging areas in floodplains and adjacent to waterways; re-seeding of herbaceous cover on disturbed sites; management of chemicals (herbicides, pesticides, de-icing compounds) with potential negative impacts on water quality; and avoidance of direct discharges into streams by catch basins and roadside vegetation.

The proposed bridge replacement will allow for continuation of pre-project hydrologic functions in the Neuse River Overflow, thereby protecting the integrity of these waterways. Long-term impacts to adjacent reaches resulting from construction are expected to be negligible. In order to minimize impacts to water resources, NCDOT Best Management Practices (BMPs) for the Protection of Surface Waters will be strictly enforced during the entire life of the project.

D. Biotic Resources

1. Plant Communities

Three distinct plant communities were identified within the project corridor: cypress-gum swamp forest, mesic mixed hardwood forest, and roadside/disturbed land. These plant communities are described below.

a) Cypress-Gum Swamp Forest (Brownwater Subtype)

A Cypress-Gum Swamp forest occurs throughout depressions within the Neuse River floodplain, such as the Neuse River Overflow, and makes up the majority of the project corridor. This type of community is commonly associated with streams and regularly flooded areas within the Coastal Plain and approximates a Cypress-Gum Swamp based on the classification system used by NHP (Schafale and Weakley 1990). This community has a well developed canopy and a sparsely developed understory due to frequent flooding. Regular flooding by the Neuse River deposits sediment and limited nutrients throughout this community. Denser undergrowth is found farther away from the stream channel where elevations slowly rise above flood levels. The canopy is dominated by swamp tupelo (*Nyssa biflora*), black gum (*Nyssa sylvatica*), and bald cypress (*Taxodium distichum*). The understory contains sub-canopy/shrub species such as Chinese privet (*Ligustrum sinense*), wax myrtle (*Myrica cerifera*), titi (*Cyrilla racemiflora*), giant cane (*Arundinaria gigantea*), and sweet bay (*Magnolia virginiana*). In areas where disturbance has cleared the canopy (i.e. windblown areas), herb and vine species such as bushy seedbox (*Ludwigia alternifolia*), rose mallow (*Hibiscus moscheutos*), dock (*Rumex conglomeratus*), greenbriar (*Smilax laurifolia*), various sedges (*Carex* sp.), netted chain-fern (*Woodwardia areolata*), and rush (*Juncus* sp.) dominate.

b) Mesic Mixed Hardwood Forest

As elevations rise away from the cypress-gum swamp, characteristics of a mesic mixed hardwood forest become more prevalent. This community exhibits similar features as characterized for the cypress-gum swamp, with additional, more upland species. This community has a well-developed canopy, but, because flooding occurs more infrequently, the understory is much more developed than in the cypress-gum swamp. Canopy species include tulip poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), American sycamore (*Platanus occidentalis*), cherrybark oak (*Quercus pagoda*), and loblolly pine (*Pinus taeda*). Understory species include saplings of canopy species as well as various species of greenbrier (*Smilax* spp.), blackberries (*Rubus* spp.), giant cane, Japanese honeysuckle (*Lonicera japonica*), and American holly (*Ilex opaca*).

c) Roadside/disturbed Land

Roadside/disturbed land is defined as the margins associated with roadside shoulders and surrounding development. This community is located throughout the project corridor and includes roadside margins, residential yards, and agriculture fields. Existing roadside margins throughout the project corridor average approximately 20 feet (six meters) in width. Most of the roadside/disturbed land and residential yards are regularly maintained and dominated by herbs. Common herbs found within these communities include English plantain (*Plantago lanceolata*), broom panic grass (*Dicanthelium scoparium*), dayflower (*Commelina* sp.), clover (*Trifolium* sp.), and various grasses. Currently, agricultural fields have been cleared and plowed for the winter although tobacco or cotton are possibly the most recent crops produced in adjacent fields. Field margins and areas adjacent to ditches are dominated by grasses and invasive herbs such as Johnson grass (*Sorghum halepense*), vasey grass (*Paspalum urvillei*), and goldenrods (*Solidago* spp.).

d) Plant Communities within the Project Corridor

Plant community areas are estimated based on the amount of each plant community present within the 100 foot (30 meters) projected right-of way width. A summary of potential plant community impacts is presented in Table 1.

TABLE 1		
PROJECTED PLANT COMMUNITY IMPACTS		
PLANT COMMUNITY	Alternative Impacts Acre (Hectare)	
	Alternate A (Preferred)	Alternate B
Cypress Swamp Forest	0.60 (0.24)	0.08 (0.03)
Mesic Mixed Hardwood Forest	0.77 (0.31)	0.45 (0.18)
Roadside/ Disturbed Land	1.64 (0.66)	0.01 (0.004)
TOTAL:	3.01 (1.22)	0.54 (0.22)

Impacts are based on a 100 foot (30.0 m) right-of-way width.

From an ecological perspective, impacts of upgrading existing road facilities are minimal. Permanent impacts to natural plant communities resulting from both Alternate A and Alternate B are generally restricted to narrow strips adjacent to the existing facility. However, the construction of a temporary detour and an expanded temporary easement are expected to result in larger impacts for Alternate A (3.01 acre [1.22 hectare]) than Alternate B (0.54 acre [0.22 hectare]). For both Alternates A and B, no permanent fragmentation of plant communities will be created as the project will result only in alteration of community boundaries. The majority of impacts to natural plant communities for both alternatives will be avoided in the long term if temporarily impacted areas are restored to natural contours and planted with natural vegetation.

2. Wildlife

a) Terrestrial

Mammal signs (tracks, scat, etc.) observed within the project corridor include the eastern cottontail (*Sylvilagus floridanus*) and tracks of a raccoon (*Procyon lotor*) and white-tailed deer (*Odocoileus virginianus*). Opportunistic and characteristic species which are expected to frequent woodlands and fringe areas include the gray squirrel (*Sciurus carolinensis*), marsh rabbit (*Sylvilagus palustris*), beaver (*Castor canadensis*), Virginia opossum (*Didelphis virginianus*), muskrat (*Ondatra zibethicus*), cotton mouse (*Peromyscus gossypinus*), mink (*Mustela vison*), and golden mouse (*Ochrotomys nuttalli*).

Several bird species may be expected to frequent the project vicinity due to the diversity of local habitats. Birds identified during the field investigation include belted kingfisher (*Ceryle alcyon*), Carolina chickadee (*Parus carolinensis*), red-bellied woodpecker (*Melanerpes carolinus*), song sparrow (*Melospiza melodia*), eastern phoebe (*Sayornis phoebe*), turkey vulture (*Cathartes aura*), northern flicker (*Colaptes auratus*), killdeer (*Charadrius vociferus*), American robin (*Turdus migratorius*), Carolina wren (*Thryothorus ludovicianus*), mourning dove (*Zenaidura macroura*), northern cardinal (*Cardinalis cardinalis*), and cedar waxwing (*Bombus cedrorum*). Other species which may frequent the project corridor may include the yellow-rumped warbler (*Dendroica coronata*), downy woodpecker (*Picoides pubescens*), eastern screech owl (*Otus asio*), and red-tailed hawk (*Buteo jamaicensis*).

No terrestrial reptile species were identified within the project corridor. Common terrestrial reptiles and amphibians which may occur within the project corridor include eastern box turtle (*Terrapene carolina*), Carolina anole (*Anolis carolinensis*), rough green snake (*Opheodrys aestivus*), broadhead skink (*Eumeces laticeps*), five-lined skink (*Eumeces fasciatus*), rat snake (*Elaphe obsoleta*), eastern kingsnake (*Lampropeltis getulus*), and eastern garter snake (*Thamnophis sirtalis*).

b) Aquatic

Limited surveys resulted in no documentation of aquatic reptiles or amphibians in the project corridor. The Neuse River Overflow provides suitable habitat for aquatic and semi-aquatic reptiles and amphibians. Local aquatic or semi-aquatic reptiles and amphibians may include snapping turtle (*Chelydra serpentina*), yellowbelly slider (*Trachemys scripta*), river cooter (*Pseudemys concinna*), brown water snake

(*Nerodia taxispilota*), redbelly water snake (*Nerodia erythrogaster*), cottonmouth (*Agkistrodon piscivorus*), eastern newt (*Notophthalmus viridescens*), southern dusky salamander (*Desmognathus auriculatus*), mud salamander (*Pseudotriton montanus*), green frog (*Rana clamitans*), southern cricket frog (*Acris gryllus*), and pickerel frog (*Rana palustris*).

Although no streams were identified within the project corridor, regular flooding by the Neuse River may introduce several species of freshwater fishes in the project corridor during extended high water. No sampling or surveys were undertaken to determine fishery potential. Species characteristic of this region that may utilize the project corridor include bowfin (*Amia calva*), American eel (*Anguila rostrata*), pirate perch (*Aphredoderus sayanus*), creek chubsucker (*Erimyzon oblongus*), eastern mosquitofish (*Gambusia holbrooki*), sawcheek darter (*Etheostoma serrifer*), and swamp darter (*Etheostoma fusiforme*) as well as others.

For Coastal Plain streams, both anadromous and catadromous fish passage should be considered in the timing of any proposed in-stream activities associated with bridge replacement. During regular flooding events in the Neuse River, the Neuse River Overflow may provide passage for several anadromous and catadromous fish. According to Menhinick (1991), six species of anadromous fish and one species of catadromous fish may migrate up the Neuse River and potentially into the Neuse River Overflow during scheduled bridge activities. While these species have not been identified within the Neuse River Overflow, they have been identified within the Neuse River. The anadromous species include sea lamprey (*Petromyzon marinus*), striped bass (*Morone saxatilis*), alewife (*Alosa pseudoharengus*), American shad (*Alosa sapidissima*), hickory shad (*Alosa mediocris*), and white perch (*Morone americana*); while the single catadromous fish species is the American eel (*Anguilla rostrata*). Design and scheduling of bridge replacement should avoid the necessity of in-stream activities during the spring migration period for these fish species within the Neuse River and tributaries including the Neuse River Overflow. The North Carolina Wildlife Resources Commission (NCWRC) requests an in-water construction moratorium from February 15 to June 15.

c) Anticipated Impacts to Wildlife

Due to the limited extent of infringement on natural communities, the proposed bridge replacement will not result in substantial loss or displacement of known terrestrial animal populations. No habitat fragmentation is expected since most improvements will be restricted to existing roadside margins. Construction noise and associated disturbances will have short-term impacts on avifauna and migratory wildlife movement. However, long-term impacts are expected to be minimal. Potential down-stream impacts to aquatic habitat will be avoided by bridging the system to maintain hydrologic conditions. Short-term impacts associated with turbidity and suspended sediments will affect benthic populations. Temporary impacts to downstream habitat from increased sediment during construction will be minimized by the implementation of stringent erosion control measures.

E. Special Topics

1. Waters of the United States

Wetlands identified within the project corridor are subject to jurisdictional consideration under Section 404 of the Clean Water Act as waters of the United States (33 CFR section 328.3). These areas are defined by the presence of three primary criteria: hydric soils, hydrophytic vegetation, and evidence of hydrology at or near the surface for a portion (12.5 percent) of the growing season (DOA 1987). NWI mapping indicates that the floodplain of the Neuse River Overflow exhibits characteristics of a palustrine, broad-leaved, deciduous forest system that is semipermanently flooded (PFO1A) (Cowardin *et al.* 1979). Field investigations indicate that floodplain wetlands do occur in the project corridor and do meet this general classification. Field investigations indicate that the Neuse River Overflow does not contain geomorphological features (sinuosity, defined stream channel, and continuous bed and bank) characteristic of jurisdictional streams. The areas of impacted wetlands within the 100-foot (30 meters) right-of-way are shown in Table 2.

TABLE 2 PROJECTED WETLAND IMPACTS		
Jurisdictional Type	Alternate A (Preferred)	Alternate B
Wetland	0.36 (0.15)	0.18 (0.07)

Areas are depicted in acre (hectare).

Permanent impacts to vegetated wetlands for both alternatives will consist of narrow strips adjacent to the existing bridge for both alternatives. However, a larger amount of impacts are associated with Alternate A (0.36 acre [0.15 hectare]) than with Alternate B (0.18 acre [0.07 hectare]). Upon completion of construction, temporary impacts associated with construction activities and the temporary alignment are expected to be restored to pre-project conditions.

There is potential that components of the existing bridge may be dropped into waters of the United States during construction. The resulting potential temporary fill associated with the construction activities is not expected to exceed eight cubic yards (six cubic meters). This project can be classified as Case 3 where construction limitations are restricted to those outlined in Best Management Practices for Protection of Surface Waters. No threatened or endangered species or protected water resources are expected to be impacted by construction activities. NCDOT will coordinate with the various resource agencies during project planning to ensure that all concerns regarding bridge demolition are resolved.

2. Permits

This project is being processed as a Categorical Exclusion (CE) under Federal Highway Administration (FHWA) guidelines. The COE has made available Nationwide Permit (NWP) No. 23 (61 FR 65874, 65916; December 13, 1996) for CEs due to minimal impacts expected with bridge construction. DWQ has made available a General 401 Water Quality Certification for NWP No. 23. However, authorization for jurisdictional area impacts through use of this permit will require written notice to DWQ. Also,

according to Colonel James W. DeLony of the COE Wilmington District, this project will not be processed under the Federal CE unless the following condition is incorporated: "Mitigation shall be provided for any unavoidable wetland losses." In the event that NWP No. 23 will not suffice, minor impacts attributed to bridging and associated approach improvements are expected to qualify under General Bridge Permit 031 issued by the Wilmington COE District. Notification to the Wilmington COE office is required if this general permit is utilized.

The Coast Guard Authorization Act of 1982 exempts bridge projects from Coast Guard bridge permits when the bridge project crosses nontidal waters which are not used, susceptible to use in their natural condition, or susceptible to use by reasonable improvement as a means to transport interstate commerce. Due to this, this bridge project is exempt, and will not require a Coast Guard Bridge Permit (Appendix).

3. Riparian Buffer Protection Rules for the Neuse River Basin

Since this project is within the Neuse River Basin, it is subject to NCDENR riparian buffer rules (15A NCAC 2B .0233). These rules were developed to protect and preserve existing riparian buffers and are part of larger nutrient reduction strategies for the basin.

The buffer rules require that up to 50 feet (15 meters) in width of riparian area be protected and maintained on the banks of waterways in the basin. The rules do not apply to portions of the riparian buffer where a use is existing and ongoing as of July 22, 1997. Existing uses include transportation facilities. It should be noted that only the portion of the buffer that contains the footprint of the existing use is exempt.

Activities in the buffer area beyond the footprint of the existing use are classified as either "exempt", "allowable", "allowable with mitigation", or "prohibited". The following lists of activities that may be subject to buffer rules within the study area are provided along with their classifications. Depending upon project alternatives, not all of the uses listed may apply, and other uses not listed here, such as utility crossings and roadside drainage ditches, among others, may be regulated under the buffer rules. Guidelines should be consulted in entirety to review all project related uses subject to the buffer rules.

Activities deemed "exempt" should be designed, constructed, and maintained to minimize soil disturbance and to provide the maximum water quality protection practicable. "Allowable" activities may proceed within the riparian buffer provided that there are no practical alternatives to the requested use. Written authorization from the DWQ or delegated local authority is required. Activities deemed "allowable with mitigation" may proceed within the riparian buffer if there are no practical alternatives to the requested use and an appropriate mitigation strategy has been approved. Written authorization from the DWQ or delegated local authority is required. "Prohibited" activities, none of which are listed above, may not proceed within the riparian buffer unless a variance is granted from the DWQ or delegated local authority.

RIPRARIAN BUFFER PROTECTION RULES				
Use	Exempt	Allowable	Allowable With Mitigation	Prohibited
<i>Bridges</i>		X		
<i>Road crossings that impact less than or equal to 150 linear ft. (45 linear meters) or 0.33 acre (0.13 hectare) of riparian buffer</i>		X		
<i>Road crossings that impact greater than 150 linear ft. (45 linear meters) or greater than 0.33 acre (0.13 hectare) of riparian buffer</i>			X	
<i>Temporary roads that disturb less than or equal to 2,500 square feet (225 square meters) provided that vegetation is restored within six months</i>	X			
<i>Temporary roads that disturb greater than 2,500 square feet (225 square meters) provided that vegetation is restored within six months</i>		X		

4. Mitigation

Section 404 compensatory mitigation for unavoidable losses has been requested by the COE. Utilization of BMPs is recommended in an effort to minimize impacts. Fill or alteration of streams may require compensatory mitigation in accordance with 15 NCAC 2H .0506(h). A final determination regarding mitigation rests with the COE.

F. Protected Species

1. Federally Protected Species

Species with the federal classification of Endangered (E) or Threatened (T), officially proposed (P) for such listing, or Threatened due to Similarity of Appearance (T[S/A]) are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The term "Endangered Species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range", and the term "Threatened Species" is defined as "any species that is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532). The term "Threatened due to Similarity of Appearance" is defined as a species which is not "Endangered" or "Threatened", but "closely resembles and Endangered or Threatened species" (16 U.S.C. 1532).

Only one federally protected species is currently listed for Wayne County (February 26, 2001 FWS list). The red-cockaded woodpecker (*Picoides borealis*) is listed as endangered for Wayne County and is described below.

Red-cockaded Woodpecker - This small woodpecker (seven to 8.5 inches [17 to 22 centimeters]) long) has a black head, prominent white cheek patch, and black-and-white barred back. Males often have red markings (cockades) behind the eye, but the

cockades may be absent or difficult to see (Potter *et al.* 1980). Primary habitat consists of mature to over-mature southern pine forests dominated by loblolly (*Pinus taeda*), long-leaf (*P. palustris*), slash (*P. elliotii*), and pond (*P. serotina*) pines (Thompson and Baker 1971). Nest cavities are constructed in the heartwood of living pines, generally older than 70 years, which have been infected with red-heart disease. Nest cavity trees tend to occur in clusters, which are referred to as colonies (FWS 1985). The woodpecker drills holes into the bark around the cavity entrance, resulting in a shiny, resinous buildup around the entrance that allows for easy detection of active nest trees. Pine flatwoods or pine-dominated savannas that have been maintained by frequent natural fires serve as ideal nesting and foraging sites for this woodpecker. Development of a thick understory may result in abandonment of cavity trees.

BIOLOGICAL CONCLUSION: Plant communities within the project corridor are described as either roadside/disturbed or bottomland swamp forest dominated by hardwoods. Neither of these plant communities support red-cockaded woodpecker nesting or foraging habitat. There is no nesting habitat within 0.5 mile (0.8 km) of the project corridor, and NHP records have no documentation of red-cockaded woodpeckers in the vicinity of the project corridor. Based on a NHP record search and habitat surveys conducted during field investigations, this project will not affect the red-cockaded woodpecker. **NO EFFECT**

Federal Species of Concern - The March 22, 2001 FWS list also includes a category of species designated as "Federal species of concern" (FSC). A species with this designation is one that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing). A list of FSC species for Wayne county with habitat survey results are listed in Table 3.

TABLE 3 Federal Species of Concern for Wayne County			
Common Name	Scientific Name	Potential Habitat	State Status*
Rafinesque's big-eared bat**	<i>Corynorhinus rafinesquii</i>	Yes	SC (PT)
Southern hognose snake**	<i>Heterodon simus</i>	No	SR (PSC)
Pinewoods shiner	<i>Lythrurus matutinus</i>	No	SR
Atlantic pigtoe	<i>Fusconaia masoni</i>	Yes	T (PE)
Pondspice	<i>Litsea aestivalis</i>	No	C

* E = Endangered; T = threatened; SC = Special concern; SR = Significantly Rare;
C = Candidate; P = Proposed

** Historic record - The species was last observed in the county more than 50 years ago.

The FSC designation provides no federal protection under the ESA for the species listed. However, NHP files have no documentation of FSC species within the project corridor or within one mile (1.6 km) of the project corridor.

2. State Protected Species

Plant and animal species which are on the North Carolina state list as Endangered (E), Threatened (T), Special Concern (SC), Candidate (C), Significantly Rare (SR), or Proposed (P) (Amoroso 1999, LeGrand and Hall 1999) receive limited protection under the North Carolina Endangered Species Act (G.S. 113-331 *et seq.*) and the North Carolina Plant Protection Act of 1979 (G.S. 106-202 *et seq.*). NHP records indicate that the heartleaf sandmat (*Chamaesyce cordifolia*) has been documented approximately 0.8 mile (1.6 km) southeast of the project corridor. This plant is listed as a candidate species for the state list that receives no protection. However, it is not under federal protection and has not been identified within Wayne County since 1979.

VI. CULTURAL RESOURCES

A. Compliance Guidelines

This project is subject to compliance with Section 106 of the National Historical Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires that for federally funded, licensed, or permitted projects having an effect on properties listed in or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation be given the opportunity to comment.

B. Historic Architecture

A field survey of the Area of Potential Effects (APE) was conducted on July 2, 1999. All structures within the APE were photographed, and later reviewed by the North Carolina State Historic Preservation Office (HPO). In a concurrence form dated November 19, 2000, the North Carolina State Historic Preservation Officer (SHPO) concurred that there are no historic architectural resources either listed in or eligible for listing on the National Register of Historic Places within the APE. A copy of the concurrence form is included in the Appendix.

C. Archaeology

The SHPO, in a memorandum dated July 28, 2000, stated they "have no comment on the project as currently proposed." Because there is little likelihood of any National Register archaeological sites occurring in the project area because of the disturbed landforms, the SHPO recommends no further action. A copy of the SHPO memorandum is included in the Appendix.

VII. ENVIRONMENTAL EFFECTS

The project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.

The project is a Federal "Categorical Exclusion" due to its limited scope and lack of substantial environmental consequences.

The bridge replacement will not have an adverse effect on the quality of the human or natural environment with the use of current NCDOT standards and specifications.

The project is not in conflict with any plan, existing land use, or zoning regulation. No substantial change in land use is expected to result from construction of the project.

No adverse impact on families or communities is anticipated. Right of way acquisition will be limited. No relocatees are expected with implementation of the proposed alternative.

No adverse effect on public facilities or services is anticipated. The project is not expected to adversely affect social, economic, or religious opportunities in the area.

There are no publicly owned recreational facilities, or wildlife and waterfowl refuges of national, state, or local significance in the vicinity of the project.

No North Carolina Geodetic Survey control monuments will be impacted during construction of this project.

The Farmland Protection Policy Act requires all federal agencies or their representatives to consider the potential impacts to prime and important farmland soils by all land acquisition and construction projects. Prime and important farmland soils are defined by the Natural Resources Conservation Service (NRCS). Since there are no prime or important farmlands in the immediate vicinity of the proposed bridge the Farmland Protection Policy does not apply.

This project is an air quality "neutral" project, so it is not required to be included the regional emission analysis (if applicable) and a project level CO analysis is not required. This project is located in Wayne County, which has been determined to be in compliance with the National Ambient Air Quality Standards. 40 CFR Part 51 is not applicable, because the proposed project is located in an attainment area. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

The traffic volumes will not increase or decrease because of this project. There are no receptors located in the immediate project area. The project's impact on noise and air quality will not be substantial.

Noise levels could increase during construction but will be temporary. If vegetation is disposed of by burning, all burning shall be done in accordance with applicable local laws and regulations of the North Carolina SIP for air quality in compliance with 15 NCAC 2D.0520. This evaluation completes the assessment requirements for highway traffic noise (23 CFR Part 772) and for air quality (1990 CAAA and NEPA) and no additional reports are required.

An examination of records at the North Carolina Department of Environment and Natural Resources, Division of Water Quality, Groundwater Section and the North Carolina Department of Human Resources, Solid Waste Management Section revealed no hazardous waste sites, no regulated or unregulated landfills or dumpsites within the project area. No facility with underground storage tanks (UST), regulated or unregulated landfills, or dumpsites occur in the project vicinity.

Wayne County is a participant in the National Flood Insurance Regular Program. This site on the Neuse River Overflow is included in a detailed F.E.M.A. flood study. The proposed replacement will not adversely affect the existing flood plain. The proposed alternatives will not modify flow characteristics and will have minimal impact on floodplains due to roadway encroachment. The existing drainage patterns and groundwater will not be affected. Attached

is a copy of the Flood Insurance Rate Map, on which are shown the approximate limits of the 100-year flood plain in the vicinity of the project (Figure 5).

On the basis of the above discussion, it is concluded that no substantial adverse environmental effects will result from implementation of the project.

VIII. AGENCY COMMENTS

The following are comments received during the scoping process:

1. North Carolina Wildlife Resource Commission (NCWRC)

Comment: *"Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15."*

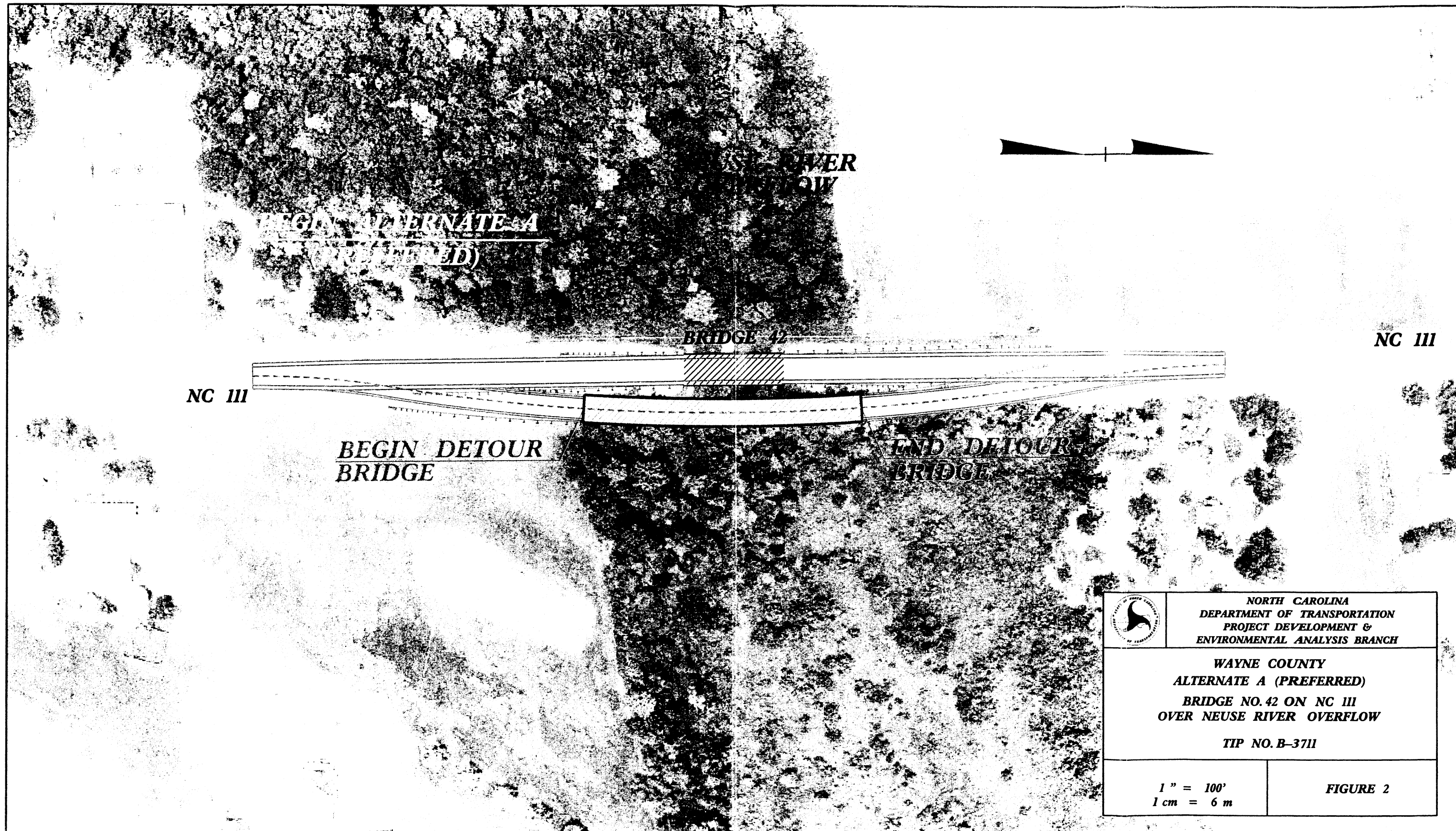
Response: Construction work will be restricted as noted in the Project Commitments.

2. North Carolina Wildlife Resource Commission (NCWRC)

Comment: *"Bridge deck drains should not discharge directly into the stream."*

Response: No deck drainage will be allowed to discharge directly into the water, main channel or Zone 1 (30 feet (nine meters) from the channel banks).

FIGURES




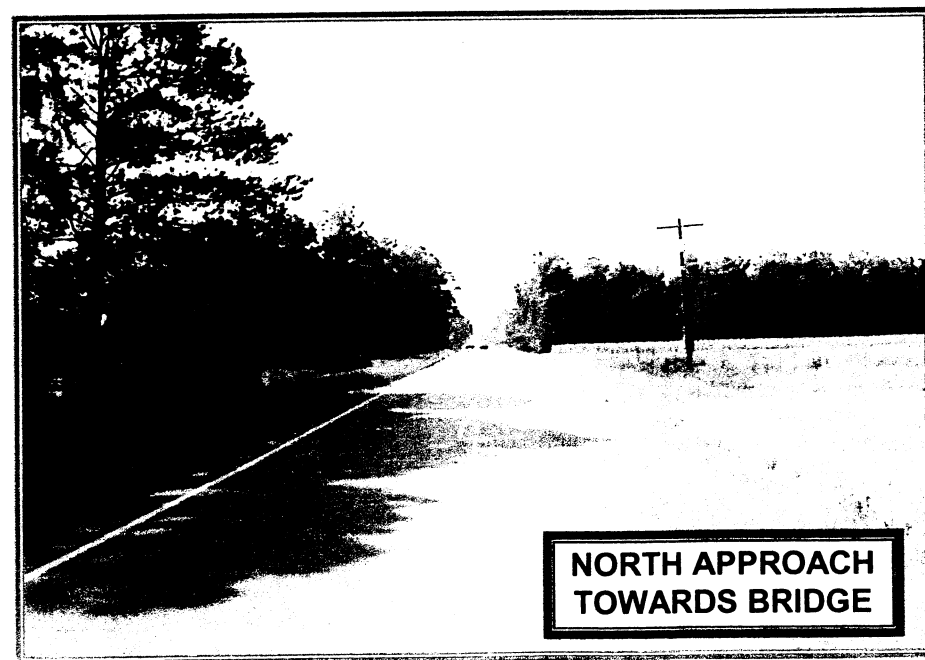
	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH
	WAYNE COUNTY ALTERNATE A (PREFERRED) BRIDGE NO. 42 ON NC 111 OVER NEUSE RIVER OVERFLOW TIP NO. B-3711
	$1" = 100'$ $1\text{ cm} = 6\text{ m}$

FIGURE 2

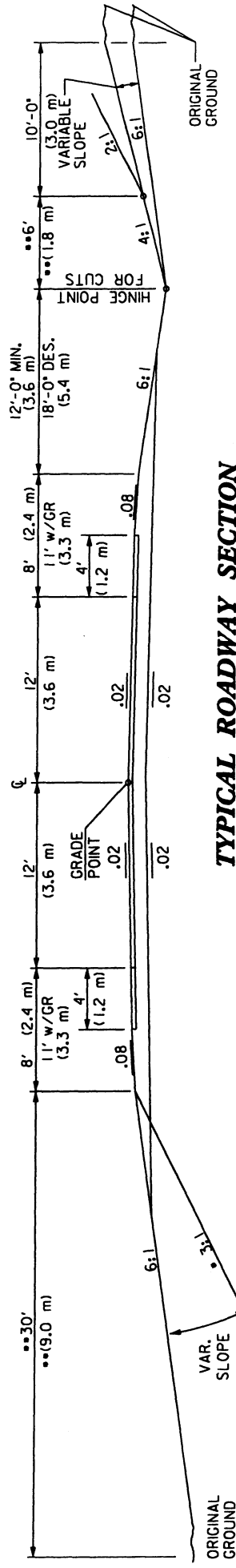




**B-3711
Replacement of Bridge
No. 42 on NC 111 Over
Neuse River Overflow
Wayne County**

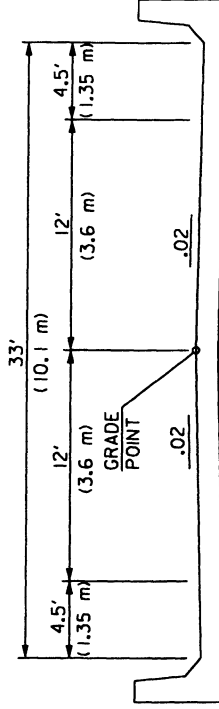


FIGURE 3



TYPICAL ROADWAY SECTION

•• WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS 6:1 TO 3:1, THE DISTANCE BECOMES VARIABLE AND THE MAX. OR MIN. SLOPE MAINTAINED.



DESIGN DATA

ADT 2001 6,400
 ADT 2003 6,800
 ADT 2025 10,500
 DUAL 3%
 TTST 1%
 DESIGN SPEED 60 mph (100 km/h)
 MAX. GRADE 5%
 RURAL MAJOR COLLECTOR
 MAX. DEGREE OF CURVE ($S_e=0.08$) 4.75 Degrees
 MIN. DES. K FACTORS: $K_{sag} = 120-160$ $K_{crest} = 190-310$

TYPICAL BRIDGE SECTION EXISTING BRIDGE LENGTH IS 104 FT.

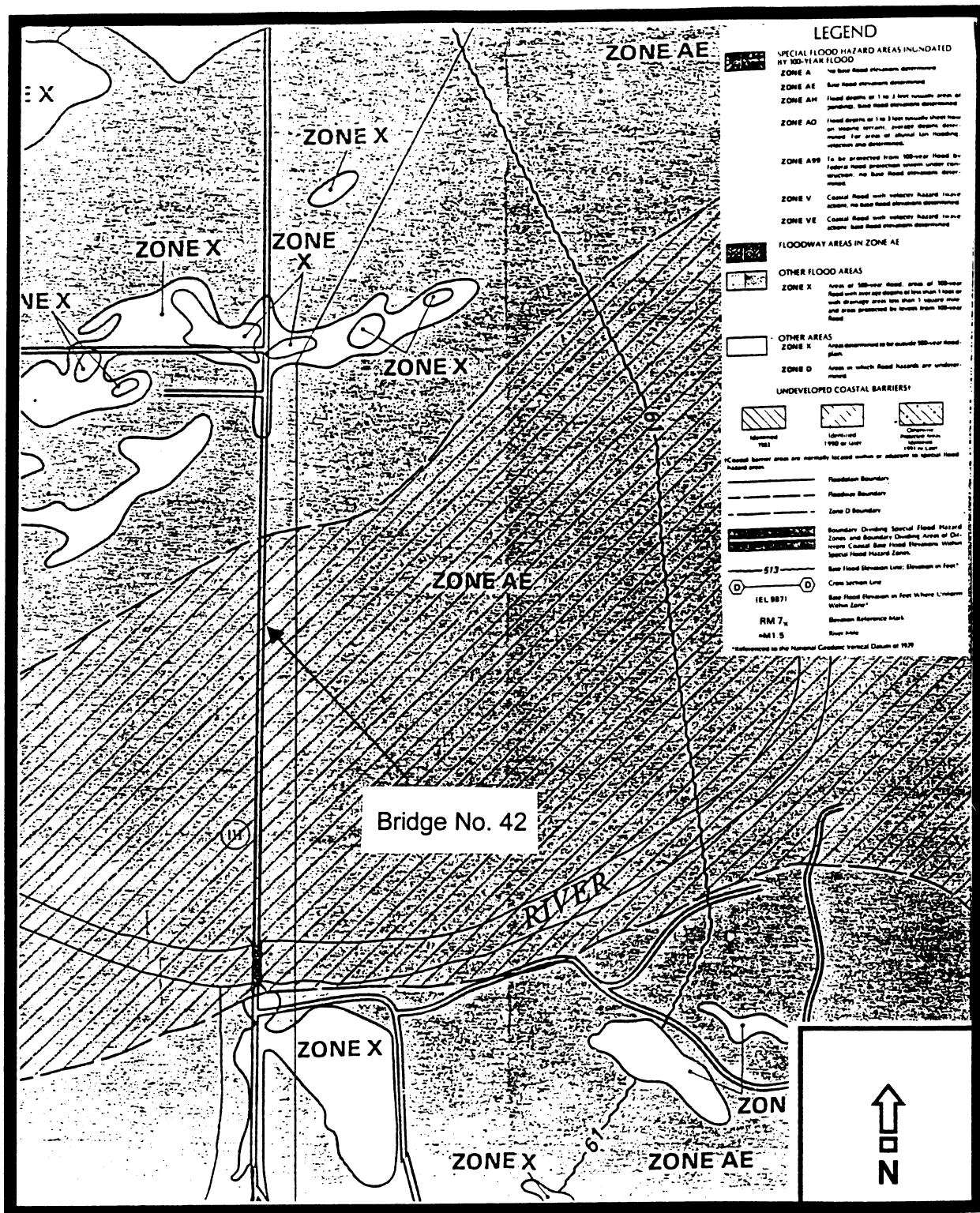


NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 PROJECT DEVELOPMENT AND
 ENVIRONMENTAL ANALYSIS BRANCH

WAYNE COUNTY

BRIDGE NO. 42 ON NC III
 OVER NEUSE RIVER OVERFLOW

B-3711



FEMA FLOOD STUDY 100 YEAR FLOOD PLAIN

Panel No. 370254 0100 D
Date: March 16, 1998
Street Name: NC 111
Wayne County, North Carolina

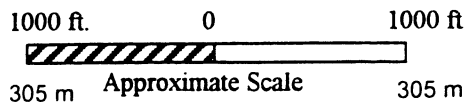


FIGURE 5

APPENDIX

RECORD OF CONTACT

DATE: 7/11/01

CONTACT WITH: Mike Bell, Corps of Engineers – Washington Office

SUBJECT: Bridge Group 27 Scoping comments(B-3612, B-3626, B-3640, B-3684, B-3685, B-3711, B-3712, B-3809, B-3810, and B-3871)

VIA: Telephone 1:00 pm

DISCUSSED: He said he agreed with the specific comments for each bridge from David Cox's (from the North Carolina Wildlife Resource Commission) letter dated 6/08/2001 (included in appendix) and the general comments from David Franklin's (of the Corps of Engineers) letter dated 8/2/2000 (included in appendix). He will not be sending out a letter.

Signed: Greg Purvis Greg Purvis, Wang Engineering



DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS

P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

August 2, 2000



Regulatory Division

Action ID No. 200001525, 200001526, 200001527, 200001528, 200001529, 200001530, 200001531.

Mr. William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, N.C. 27699-1548

Dear Mr. Gilmore:

Reference your letters dated June 7, 2000, June 28, 2000, and July 3, 2000 regarding the following proposed bridge replacement projects, including those of Group XXVII:

1. TIP Project B-3449, Duplin County, Bridge No. 204 on SR 1827 over Northeast Cape Fear River, Action ID 200001525.
2. TIP Project B-3626, Carteret County, Bridge No. 26 on SR 1154 over a branch of the Newport River, Action ID 200001526.
3. TIP Project B-3884, Onslow County, Bridge No. 40 on SR 1308 over Squires Run, Action ID 200001527.
4. TIP Project B-3887, Pender County, Bridge No. 116 on SR 1520 over Shaken Creek, Action ID 200001528.
5. TIP Project B-3516, Scotland County, Bridge No. 59 on SR 1614 over Gum Swamp Creek, Action ID 200001529.
6. TIP Project B-3515, Scotland County, Bridge No. 46 on SR 1612 over Big Shoe Heel Creek, Action ID 200001530.
7. TIP Project B-3613, Bladen/Sampson County, Bridge No. 44 on NC 41 over South River, Action ID 200001531.

Based on the information provided in the referenced letters, it appears that each proposed bridge replacement project may impact jurisdictional wetlands. Department of the Army (DA) permit authorization, pursuant to Section 404 of the Clean Water Act of 1977, as amended, will be required for the discharge of excavated or fill material in waters of the United States or any adjacent wetlands in conjunction with these projects, including

disposal of construction debris. Specific permit requirements will depend on design of the projects, extent of fill work within the waters of the United States, including wetlands, construction methods, and other factors.

Although these projects may qualify as a Categorical Exclusion, to qualify for nationwide permit authorization under Nationwide Permit #23, the project planning report should contain sufficient information to document that the proposed activity does not have more than a minimal individual or cumulative impact on the aquatic environment. Our experience has shown that replacing bridges with culverts often results in sufficient adverse impacts to consider the work as having more than minimal impacts on the aquatic environment. Accordingly, the following items need to be addressed in the project planning report:

- a. The report should contain the amount of permanent and temporary impacts to waters and wetlands as well as a description of the type of habitat that will be affected.
- b. Off-site detours are always preferable to on-site (temporary) detours in wetlands. If an on-site detour is the recommended action, justification should be provided. On-site detours can cause permanent wetland impacts due to sediment consolidation resulting from the on-site detour itself and associated heavy equipment. Substantial sediment consolidation in wetland systems may in turn cause fragmentation of the wetland and impair the ecological and hydrologic functions of the wetland. Thus, on-site detours constructed in wetlands can result in more than minimal wetland impacts. These types of wetland impacts will be considered as permanent wetland impacts.

For proposed projects and associated on-site detours that cause minimal losses of wetlands, an approved wetland restoration plan will be required prior to issuance of a DA nationwide or general permit. For proposed projects and associated on-site detours that cause significant wetland losses, an individual DA permit and a mitigation proposal for the unavoidable wetland impacts may be required.

In view of our concerns related to onsite detours constructed in wetlands, recent field inspections were conducted at each of the proposed project sites and a cursory determination was made on the potential for sediment consolidation due to an onsite detour. Based on these inspections, potential for sediment consolidation in wetlands exists at several of the proposed projects. Therefore, it is recommended that geotechnical evaluations be conducted at each project site to estimate the magnitude of sediment consolidation that can occur due to an on-site detour and the results be provided in the project planning report.

Based on our field inspections, we strongly recommend that geotechnical evaluations be conducted at the following proposed project sites:

- 1) TIP Project B-3626, Carteret County, Bridge No. 226 on SR 1154 over a branch of the Newport River, Action ID 200001526.
- 2) TIP Project B-3884, Onslow County, Bridge No. 40 on SR 1308 over Squires Run, Action ID 200001527.
- 3) TIP Project B-3887, Pender County, Bridge No. 116 on SR 1520 over Shaken Creek, Action ID 200001528.
- 4) TIP Project B-3516, Scotland County, Bridge No. 59 on SR 1614 over Gum Swamp Creek, Action ID 200001529.
- 5) TIP Project B-3515, Scotland County, Bridge No. 46 on SR 1612 over Big Shoe Heel Creek, Action ID 200001530.

c. Project commitments should include the removal of all temporary fills from waters and wetlands and "time-of-year" restrictions on in-stream work if recommended by the NC Wildlife Resources Commission. In addition, if undercutting is necessary for temporary detours, the undercut material should be stockpiled to be used to restore the site.

d. All restored areas should be planted with endemic vegetation including trees, if appropriate.

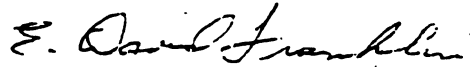
e. The report should provide an estimate of the linear feet of new impacts to streams resulting from construction of the project.

f. If a bridge is proposed to be replaced with a culvert, NCDOT must demonstrate that the work will not result in more than minimal impacts on the aquatic environment, specifically addressing the passage of aquatic life including anadromous fish. In addition, the report should address the impacts that the culvert would have on recreational navigation.

g. The report should discuss and recommend bridge demolition methods and shall include the impacts of bridge demolition and debris removal in addition to the impacts of constructing the bridge. The report should also incorporate the bridge demolition policy recommendations pursuant to the NCDOT policy entitled "Bridge Demolition and Removal in Waters of the United States" dated September 20, 1999.

Should you have any questions, please call Mr. David L. Timpy at the Wilmington Field office at 910-251-4634.

Sincerely,

A handwritten signature in cursive script, reading "E. David Franklin".

E. David Franklin
NCDOT Team Leader

U.S. Department
of Transportation

United States
Coast Guard



Commander
United States Coast Guard
Atlantic Area

431 Crawford Street
Portsmouth, Va. 23704-5004
Staff Symbol: (Aowb)
Phone: (757)398-6422

16590
15 FEB 01

Mr. William D. Gilmore, P.E.
Manager, Project Development and Environmental
Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Mr. Gilmore:

Our Bridge Staff has reviewed your plans and specifications dated July 3, 2000, for the replacement of 14 bridges in 10 different counties of North Carolina.

All of the waterways involved in this project are considered navigable waterways of the United States for Bridge Administration purposes. Must also meet the criteria for advance approval waterway set forth in Title 33, Code of Federal Regulations, Section 115.70, at all of the bridge sites. Advance approval waterways are those that are navigable in law, but not actually navigated by other than small boats. In such cases, the Commandant of the Coast Guard has given his advance approval to the construction of bridges across such waterways. The North Carolina State projects include bridge #143 over Northeast Cape Fear River, bridge #26 over a branch of the Newport River, bridge #16 over Merchants Mill Pond, bridge #30 over Green Mill Run, bridge 42 over Neuse River, bridge #88 over Falling Creek, bridge #64 over Pungo Creek, bridge #272 over Big Swamp, bridge #64 over Dog Branch, bridge #40 over Squires Run and bridge #116 over Shaken Creek which all qualify for the Advance Approval category. Accordingly, individual Coast Guard bridge permits will not be required for the new bridges across these waterways.

The fact that a Coast Guard permit will not be required for these advance approval bridges, does not relieve you of the responsibility for compliance with the requirements of any other Federal, State, or local agency who may have jurisdiction over any aspect of these projects.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ann B. Deaton".

ANN B. DEATON
Chief, Bridge Administration Office
By direction of the Commander
Fifth Coast Guard District



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive N
St. Petersburg, Florida 33702

July 25, 2000

Colonel James W. DeLony,
District Engineer, Wilmington District
Department of the Army, Corps of Engineers
P. O. Box 1890
Wilmington, North Carolina 28402-1890

Attention Dave Timpy/Mike Bell

Dear Colonel DeLony:

Please reference the July 3, 2000, letter (copy enclosed) from the North Carolina Department of Transportation requesting National Marine Fisheries Service's (NMFS) comments on the proposed replacement of eleven highway bridges in eastern North Carolina under the Federal Categorical Exclusion (CE). The letter specifically addresses the potential impacts of demolition and removal of the existing structure and other environmental concerns in the project areas. We have reviewed the information provided with the letter and offer the following comments for consideration.

A. Anadromous Fishery Resources/Wetlands

Project No. 1	B-3449, Duplin County, Replace Bridge No. 204 on SR 1827 over the Northeast Cape Fear River
Project No. 2	B-3612, Bertie County, Replace Bridge No. 143 on SR 1123 over Branch of Indian Creek
Project No. 4	B-3684, Pitt County, Replace Bridge No. 129 on SR 1565 over the Tar River
Project No. 5	B-3708, Washington/Martin Counties, Replace Bridge No. 66 on SR 1325/SR1583 over Welch Creek
Project No. 7	B-3712, Wayne County, Replace Bridge No. 88 on SR 1006 over Falling Creek
Project No. 8	B-3809, Beaufort County, Replace Bridge No. 64 on NC 99 over Pungo Creek
Project No. 11	B-3887, Pender County, Replace Bridge No. 116 on SR 1520 over Shaken Creek

The projects listed above span waters that support anadromous fishery resources for which the NMFS is responsible. Anadromous fish species commonly found through the project area include American shad (*Alosa sapidissima*), hickory shad (*Alosa mediocris*), blueback herring (*Alosa*



aestivalis), alewife (*Alosa pseudoharengus*), striped bass (*Morone saxatilis*), and Atlantic sturgeon (*Acipenser oxyrinchus*). Each of the above project areas provide spawning and nursery habitat for some subset of these anadromous species. Bridge demolition and construction can result in sediment disturbing activities and discharges of highway construction materials and pollutants that are detrimental to early life history stages of these species. In addition to habitat, wooded wetlands within the project area provide water quality maintenance functions that are important for the production of fishery resources in downstream waters. Any wetland losses associated with these seven projects will add to the cumulative loss of wetlands that are detrimental to the continued production of NMFS trust resources.

Therefore, in order to minimize adverse impacts to fisheries, we recommend that these projects not be processed under the Federal CE unless the following conditions are incorporated:

"No construction or demolition activities shall be allowed in the water between February 15 and June 1 of any year."

"Mitigation shall be provided for any unavoidable wetland losses."

In addition to the above, Project Nos. 1, 2, and 5 are located in river basins that support the endangered shortnose sturgeon (*Acipenser brevirostrum*). Accordingly, we recommend coordination with our Protected Resources Division at the letterhead address or at 727/570-5312.

B. Wetlands

Project No. 6	B-3711, Wayne County, Replace Bridge No. 42 on NC 111 over Neuse River Overflow
Project No. 9	B-3810, Beaufort County, Replace Bridge No. 272 on SR 1514 over Big Swamp
Project No. 10	B-3884, Onslow County, Replace Bridge No. 40 on SR 1308 over Squires Run

Wooded wetlands within these project areas provide water quality maintenance functions that are important for the continued production of fishery resources in downstream waters. Therefore, in order to minimize adverse impacts to fishery resources, we recommend that this work not be processed under the Federal CE unless the following condition is incorporated:

"Mitigation shall be provided for any unavoidable wetland losses."

C. Estuarine Fishery Resources/Wetlands

Project No. 3	B-3626 Carteret County, Replace Bridge No. 26 on SR 1154 over Branch of Newport River
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Wooded wetlands within the project area provide water quality maintenance functions that are important for the continued production of estuarine dependent fishery resources. Therefore, in order to minimize adverse impacts to estuarine resources, we recommend that this work not be processed under the Federal CE unless the following condition is incorporated:

"Mitigation shall be provided for any unavoidable wetland losses."

Thank you for the opportunity to provide these comments. If we can be of further assistance, please advise.

Sincerely,



 Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division

Enclosure

cc: FWS, ATLA, GA
FWS, Raleigh, NC
EPA, ATLA, GA
NCDENR, Raleigh, NC
NCDENR, Morehead City, NC
NCDOT, Raleigh, NC
F/SER4



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

July 25, 2000

Mr. William D. Gilmore, P.E., Manager
NCDOT
Project Development and Environmental Analysis Branch
1548 Mail Service Center
Raleigh, NC 27699-1548

Dear Mr. Gilmore:

Thank you for your July 3, 2000 request for information from the U.S. Fish and Wildlife Service (Service) on the potential environmental impacts of fourteen proposed bridge replacements in various counties in eastern North Carolina. This report provides scoping information and is provided in accordance with provisions of the Fish and Wildlife Coordination Act (FWCA) (16 U.S.C. 661-667d) and Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543). This report also serves as initial scoping comments to federal and state resource agencies for use in their permitting and/or certification processes for this project.

The North Carolina Department of Transportation (NCDOT) proposes to replace the following bridge structures:

1. B-3449, Bridge No. 204 on SR 1827 over the Northeast Cape Fear River, Duplin County;
2. B-3612, Bridge No. 143 on SR 1123 over Branch of Indian Creek, Bertie County;
3. B-3626, Bridge No. 26 on SR 1154 over Branch of Newport River, Carteret County;
4. B-3640, Bridge No. 16 on SR 1400 over Merchants Mill Pond, Gates County;
5. B-3684, Bridge No. 129 on SR 1565 over the Tar River, Pitt County;
6. B-3685, Bridge No. 30 on SR 1703 over Green Mill Run, Greenville, Pitt County;
7. B-3708, Bridge No. 66 on SR 1325/SR 1583 over Welch Creek, Washington/Martin Counties;
8. B-3711, Bridge No. 42 on NC 111 over the Neuse River Outflow, Wayne County;

9. B-3712, Bridge No. 88 over SR 1006, Falling Creek, Wayne County;
10. B-3809, Bridge No. 64 on NC 99 over Pungo Creek, Beaufort County;
11. B-3810, Bridge No. 272 on SR 1514 over Big Swamp, Beaufort County;
12. B-3871, Bridge No. 64 on SR 1001 over Dog Branch, Martin County;
13. B-3884, Bridge No. 40 on SR 1308 over Squires Run, Onslow County; and,
14. B-3887, Bridge No. 116 on SR 1520 over Shaken Creek, Pender County.

The following recommendations are provided to assist you in your planning process and to facilitate a thorough and timely review of the project.

Generally, the Service recommends that wetland impacts be avoided and minimized to the maximum extent practical as outlined in Section 404 (b)(1) of the Clean Water Act Amendments of 1977. In regard to avoidance and minimization of impacts, we recommend that proposed highway projects be aligned along or adjacent to existing roadways, utility corridors, or previously developed areas in order to minimize habitat fragmentation and encroachment. Areas exhibiting high biodiversity or ecological value important to the watershed and region should be avoided. Crossings of streams and associated wetland systems should use existing crossings and/or occur on a structure wherever feasible. Where bridging is not feasible, culvert structures that maintain natural water flows and hydraulic regimes without scouring, or impeding fish and wildlife passage, should be employed. Highway shoulder and median widths should be reduced through wetland areas. Roadway embankments and fill areas should be stabilized by using appropriate erosion control devices and techniques. Wherever appropriate, construction in sensitive areas should occur outside fish spawning and migratory bird nesting seasons.

The National Wetlands Inventory (NWI) maps of the Chinquapin, Grantham, Greenville SW, Grimesland, Merchants Mill Pond, Newport, Old Ford, Ransomville, Richlands, SE Goldsboro, Stag Park, Washington, Williamston, and Woodville 7.5 Minute Quadrangles show wetland resources in the specific work areas. However, while the NWI maps are useful for providing an overview of a given area, they should not be relied upon in lieu of a detailed wetland delineation by trained personnel using an acceptable wetland classification methodology. Therefore, in addition to the above guidance, we recommend that the environmental documentation for this project include the following in sufficient detail to facilitate a thorough review of the action.

1. The extent and acreage of waters of the U.S., including wetlands, that are to be impacted by filling, dredging, clearing, ditching, or draining. Acres of wetland impact should be differentiated by habitat type based on the wetland classification scheme of the National Wetlands Inventory. Wetland boundaries should be determined by using the 1987 Corps of Wetlands Delineation Manual and verified by the U.S. Army Corps of Engineers (Corps).
2. If unavoidable wetland impacts are proposed, we recommend that every effort be made to

identify compensatory mitigation sites in advance. Project planning should include a detailed compensatory mitigation plan for offsetting unavoidable wetland impacts. Opportunities to protect mitigation areas in perpetuity, preferably via conservation easement, should be explored at the outset.

The enclosed lists identify the federally-listed endangered and threatened species, and Federal Species of Concern (FSC) that are known to occur in Beaufort, Bertie, Carteret, Duplin, Gates, Martin, Onslow, Pender, Pitt, Washington, and Wayne Counties. The Service recommends that habitat requirements for the listed species be compared with the available habitats at the respective project sites. If suitable habitat is present within the action area of the project, biological surveys for the listed species should be performed. Environmental documentation that includes survey methodologies, results, and NCDOT's recommendations based on those results, should be provided to this office for review and comment.

FSC's are those plant and animal species for which the Service remains concerned, but further biological research and field study are needed to resolve the conservation status of these taxa. Although FSC's receive no statutory protection under the ESA, we would encourage the NCDOT to be alert to their potential presence, and to make every reasonable effort to conserve them if found. The North Carolina Natural Heritage Program should be contacted for information on species under state protection.

The Service appreciates the opportunity to comment on this project. Please continue to advise us during the progression of the planning process, including your official determination of the impacts of this project. If you have any questions regarding these comments, please contact Tom McCartney at 919-856-4520, ext. 32.

Sincerely,



Dr. Garland B. Pardue
Ecological Services Supervisor

Enclosures

cc:

COE, Washington, NC (Michael Bell)
COE, Wilmington, NC (David Timpy)
NCDWQ, Raleigh, NC (John Hennessey)
NCDNR, Northside, NC (David Cox)
FHWA, Raleigh, NC (Nicholas Graf)
EPA, Atlanta, GA (Ted Bisterfield)


FWS/R4:TMcCartney:TM:07/24/00:919/856-4520 extension 32:\14brdgs.var



North Carolina Wildlife Resources Commission

Charles R. Fullwood, Executive Director

TO: Stacy Harris, PE
Project Engineer, NCDOT

FROM: David Cox, Highway Project Coordinator
Habitat Conservation Program 

DATE: June 8, 2001

SUBJECT: NCDOT Bridge Replacements in Duplin, Bertie, Carteret, Gates, Pitt, Wayne, Beaufort, Martin, Onslow, and Pender counties of North Carolina. TIP Nos. B-3449, B-3612, B-3626, B-3640, B-3684, B-3685, B-3711, B-3712, B-3809, B-3810, B-3871, B-3884, and B-3887.

Biologists with the N. C. Wildlife Resources Commission (NCWRC) have reviewed the information provided and have the following preliminary comments on the subject project. Our comments are provided in accordance with provisions of the National Environmental Policy Act (42 U.S.C. 4332(2)(c)) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

On bridge replacement projects of this scope our standard recommendations are as follows:

1. We generally prefer spanning structures. Spanning structures usually do not require work within the stream and do not require stream channel realignment. The horizontal and vertical clearances provided by bridges allows for human and wildlife passage beneath the structure, does not block fish passage, and does not block navigation by canoeists and boaters.
2. Bridge deck drains should not discharge directly into the stream.
3. Live concrete should not be allowed to contact the water in or entering into the stream.
4. If possible, bridge supports (bents) should not be placed in the stream.
5. If temporary access roads or detours are constructed, they should be removed back to original ground elevations immediately upon the completion of the project. Disturbed areas should be seeded or mulched to stabilize the soil and native tree species should be planted with a spacing of not more than 10'x10'. If possible, when using temporary

structures the area should be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact, allows the area to revegetate naturally and minimizes disturbed soil.

6. A clear bank (riprap free) area of at least 10 feet should remain on each side of the stream underneath the bridge.
7. In trout waters, the N.C. Wildlife Resources Commission reviews all U.S. Army Corps of Engineers nationwide and general '404' permits. We have the option of requesting additional measures to protect trout and trout habitat and we can recommend that the project require an individual '404' permit.
8. In streams that contain threatened or endangered species, NCDOT biologist Mr. Tim Savidge should be notified. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. In streams that are used by anadromous fish, the NCDOT official policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997)" should be followed.
10. In areas with significant fisheries for sunfish, seasonal exclusions may also be recommended.
11. Sedimentation and erosion control measures sufficient to protect aquatic resources must be implemented prior to any ground disturbing activities. Structures should be maintained regularly, especially following rainfall events.
12. Temporary or permanent herbaceous vegetation should be planted on all bare soil within 15 days of ground disturbing activities to provide long-term erosion control.
13. All work in or adjacent to stream waters should be conducted in a dry work area. Sandbags, rock berms, cofferdams, or other diversion structures should be used where possible to prevent excavation in flowing water.
14. Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.
15. Only clean, sediment-free rock should be used as temporary fill (causeways), and should be removed without excessive disturbance of the natural stream bottom when construction is completed.
16. During subsurface investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

If corrugated metal pipe arches, reinforced concrete pipes, or concrete box culverts are used:

1. The culvert must be designed to allow for fish passage. Generally, this means that the culvert or pipe invert is buried at least 1 foot below the natural stream bed. If multiple cells are required the second and/or third cells should be placed so that their

bottoms are at stream bankful stage (similar to Lyonsfield design). This could be accomplished by constructing a low sill on the upstream end of the other cells that will divert low flows to another cell. This will allow sufficient water depth in the culvert or pipe during normal flows to accommodate fish movements. If culverts are long, notched baffles should be placed in reinforced concrete box culverts at 15 foot intervals to allow for the collection of sediments in the culvert, to reduce flow velocities, and to provide resting places for fish and other aquatic organisms moving through the structure.

2. If multiple pipes or cells are used, at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.
3. Culverts or pipes should be situated so that no channel realignment or widening is required. Widening of the stream channel at the inlet or outlet of structures usually causes a decrease in water velocity causing sediment deposition that will require future maintenance.
4. Riprap should not be placed on the stream bed.

In most cases, we prefer the replacement of the existing structure at the same location with road closure. If road closure is not feasible, a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing and to avoid destabilizing stream banks. If the structure will be on a new alignment, the old structure should be removed and the approach fills removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. If the area that is reclaimed was previously wetlands, NCDOT should restore the area to wetlands. If successful, the site may be used as wetland mitigation for the subject project or other projects in the watershed.

Project specific comments:

1. B-3449 – Duplin County – Bridge No. 204 over Northeast Cape Fear River. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 1 to June 15 for areas where there is the potential for Shortnose sturgeon, an endangered species. We request that High Quality Sedimentation and Erosion Control Measures be used due to the presence of HQW waters.
2. B-3612 – Bertie County – Bridge No. 143 over a branch of Indian Creek. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened or endangered species in the project vicinity. NCDOT should be aware that NCWRC has designated NCWRC gamelands in the vicinity of this bridge. Impacts to gameland properties should be avoided.
3. B-3626 – Carteret County – Bridge No. 26 over a branch of the New Port River. Standard comments apply. We are not aware of any threatened or endangered species in the project vicinity.
4. B-3640 – Gates County – Bridge No. 16 over Merchant's Mill Pond. Standard comments apply. We are not aware of any threatened or endangered species in the project vicinity.

5. B-3684 Pitt County – Bridge No. 129 over Tar River. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened or endangered species in the project vicinity. Standard comments apply.
6. B-3685 – Pitt County – Bridge No. 30 over Green Mill Run. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened or endangered species in the project vicinity. Standard comments apply.
7. B-3711 – Wayne County – Bridge No. 42 over the Neuse River Overflow. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened or endangered species in the project vicinity. Standard comments apply.
8. B-3712 – Wayne County – Bridge No 88 over Falling Creek. Standard comments apply. We are not aware of any threatened or endangered species in the project vicinity.
9. B-3809 – Beaufort County – Bridge No. 64 over Pungo Creek. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened or endangered species in the project vicinity. Standard comments apply.
10. B-3810 – Beaufort County – Bridge No. 272 over Big Swamp. Standard comments apply. We are not aware of any threatened or endangered species in the project vicinity.
11. B-3871 – Martin County – Bridge No. 64 over Dog Branch. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened or endangered species in the project vicinity. Standard comments apply.
12. B-3884 Onslow County – Bridge No. 40 over Squires Run. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened or endangered species in the project vicinity. Standard comments apply.
13. B-3887 Pender County – Bridge No. 116 over Shaken Creek. Due to the potential for anadromous fish at this location, NCDOT should closely follow the "Stream Crossing Guidelines for Anadromous Fish Passage". This includes an in-water work moratorium from February 15 to June 15. We are not aware of any threatened or endangered species in the project vicinity. Standard comments apply.

We request that NCDOT routinely minimize adverse impacts to fish and wildlife resources in the vicinity of bridge replacements. The NCDOT should install and maintain sedimentation control measures throughout the life of the project and prevent wet concrete from contacting water in or entering into these streams. Replacement of bridges with spanning structures of some type, as opposed to pipe or box culverts, is recommended in most cases.

Bridge Memo

5

June 8, 2001

Spanning structures allow wildlife passage along streambanks, reducing habitat fragmentation and vehicle related mortality at highway crossings.

If you need further assistance or information on NCWRC concerns regarding bridge replacements, please contact me at (919) 528-9886. Thank you for the opportunity to review and comment on these projects.



North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

July 28, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development & Environmental Analysis Branch

From: David Brook *PS for David Brook*
Deputy State Historic Preservation Officer

Re: B-3711, Wayne County, Replace Bridge No. 42
on NC 111 Over Neuse River Overflow, ER 01-7091

Thank you for your memorandum of July 3, 2000, concerning the above project.

We have conducted a review of the project and are aware of no properties of architectural, historic, or archaeological significance which would be affected by the project. Therefore, we have no comment on the project as currently proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

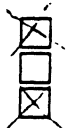
cc: B. Church, NC DOT
T. Padgett, NC DOT

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2671
RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801

CONCURRENCE FORM FOR PROPERTIES NOT ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES

Project Description: Replace Bridge No. 42 on NC 111 over Neuse River Overflow

On November 2, 2000, representatives of the

North Carolina Department of Transportation (NCDOT)
Federal Highway Administration (FHWA)
North Carolina State Historic Preservation Office (SHPO)

Reviewed the subject project at

a scoping meeting
photograph review session/consultation
other

All parties present agreed



there are no properties over fifty years old within the project's area of potential effect.

there are no properties less than fifty years old which are considered to meet Criterion Consideration G within the project's area of potential effect.

there are properties over fifty years old (list attached) within the project's area of potential effect, but based on the historical information available and the photographs of each property, properties identified as Property #1 are considered not eligible for the National Register and no further evaluation of them is necessary.

there are no National Register-listed properties located within the project's area of potential effect.

Signed:

Mary Pope

Representative, NCDOT

11/2/00

Date

Mindy C. Deane

FHWA, for the Division Administrator, or other Federal Agency

12/19/00

Date

Jeff Montgomery

Representative, SHPO

11/2/00

Date

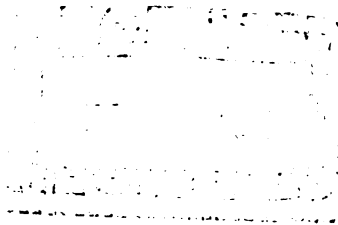
David Wood

State Historic Preservation Officer

11/14/00

Date

FAX



WAYNE COUNTY PUBLIC SCHOOLS
BUS GARAGE/TIMS OFFICE
1603 SALEM CHURCH RD
GOLDSBORO, N.C. 27530

Date 2-13-01

Number of pages including cover sheet 1

B-3711

To:

Pamela Williams

Phone _____

Fax Phone _____

CC: _____

From:

TIMS OFFICE

STEPHANIE OR
SHIRLENE

Phone 919-705-6084

Fax Phone 919-705-6006

REMARKS:

☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

Re: No. of buses on Falling Creek + Neuse River bridges.

Falling Creek - 3 buses Am + pm

Neuse River - 4 buses Am + pm

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>B-3711 Neuse River Overlook</u> Applicant/Owner: <u>NC DOT (ESC)</u> Investigator: <u>Adam V McIntyre</u>	Date: <u>1-9-01</u> County: <u>Wayne</u> State: <u>NC</u>
Do Normal Circumstances exist on the site? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Is the site significantly disturbed (Atypical Situation)? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Is the area a potential Problem Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If needed, explain on reverse)	Community ID: <u>Cypress-64</u> Transect ID: <u>VA 18</u> Plot ID: <u>WET</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Taxodium distichum</u>	<u>T</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Najas aquatica</u>	<u>T</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Liquidambar styraciflua</u>	<u>T</u>	<u>FAC+</u>	11. _____	_____	_____
4. <u>Ulmus americana</u>	<u>T</u>	<u>FACW</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. <u>Ludwigia alternifolia</u>	<u>H</u>	<u>OBL</u>	14. _____	_____	_____
7. <u>Carex spp</u>	<u>H</u>	_____	15. _____	_____	_____
8. <u>Woodwardia arifolia</u>	<u>H</u>	<u>OBL</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) > 50%

Remarks:

HYDROLOGY

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>8</u> (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>6</u> (in.)	Remarks:

SOILS

Map Unit Name (Series and Phase): <u>Kinston Loam</u>		Drainage Class: <u>PD</u>	
Taxonomy (Subgroup): <u>Typic Fluvaquents</u>		Field Observations Confirm Mapped Type: <input checked="" type="radio"/> Yes <input type="radio"/> No	

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0+	A	10YR 3/1	10YR 3/6	strong/Abundant	sandy loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input checked="" type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input checked="" type="checkbox"/> High Organic Content in Surface layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
---	--

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	(Circle) Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Remarks:	

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>B-3711 Newe River Overflow</u> Applicant/Owner: <u>NC DOT (ESC)</u> Investigator: <u>Adam V McIntyre</u>	Date: <u>1-9-01</u> County: <u>Wayne Co</u> State: <u>NC</u>
Do Normal Circumstances exist on the site? <u>Yes</u> No Is the site significantly disturbed (Atypical Situation)? <u>Yes</u> No Is the area a potential Problem Area? <u>Yes</u> No (If needed, explain on reverse)	Community ID: <u>Misc Mixed H</u> Transect ID: <u>VA 18</u> Plot ID: <u>Upland</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Pinus taeda</u>	<u>T</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>Liquidambar styraciflua</u>	<u>T</u>	<u>FAC+</u>	10. _____	_____	_____
3. <u>Liriodendron tulipifera</u>	<u>T</u>	<u>FAC</u>	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. <u>Ilex opaca</u>	<u>S</u>	<u>FAC-</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. <u>Saxifraga rotundifolia</u>	<u>H</u>	<u>FAC</u>	15. _____	_____	_____
8. <u>Junonia sp.</u>	<u>H</u>	<u>FACW</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-) > 50 %

Remarks:

HYDROLOGY

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>>12</u> (in.) Depth to Free Water in Pit: <u>>12</u> (in.) Depth to Saturated Soil: <u>>12</u> (in.)	Remarks:

SOILS

Map Unit Name: (Series and Phase): <u>Kinston Loan</u>		Drainage Class: <u>PD</u>	
Taxonomy (Subgroup): <u>Typic Fluvaquents</u>		Field Observations Confirm Mapped Type: Yes <input checked="" type="radio"/> No	

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1	O	organic layer			sand
1+	A	2.5YR 4/6	—	—	organic coated sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
---	--

Remarks:

organic coated sand grains (< 20%)

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? Yes <input checked="" type="radio"/> No Hydric Soils Present? Yes <input checked="" type="radio"/> No	(Circle) Is this Sampling Point Within a Wetland? Yes <input checked="" type="radio"/> No
Remarks:	

Approved by HQUSACE 2/92

Wetland Rating Worksheet

Project Name B-3711, NC 42 over New River Nearest Road NC 42

County Wayne Co. Name of Evaluator Aden V. McIntyre Date 01/09/01

Wetland Location

- ☐ on pond or lake
☐ on perennial stream
☐ on intermittent stream
☐ within interstream divide
☒ other

Adjacent Land Use (within 0.5 mile upstream)

- forested/natural vegetation 40
 agriculture, urban/suburban 55
 impervious surface 5

Soil Series

- Kinston Loam
☐ predominantly organic humus, muck or peat
☒ predominantly mineral, non-sandy
☐ predominantly sandy

Dominant Vegetation

- 1) Bald Cypress
 2) American Elm
 3) netted chain-fern

Hydraulic Factors

- ☐ steep topography
☐ ditched or channelized
☒ wetland width \geq 50 feet

Flooding and Wetness

- ☐ semi-permanently to permanently or inundated
☒ seasonally flooded or inundated
☐ intermittently flooded or temporary surface water
☐ no evidence of flooding or surface water

Wetland Type

- ☐ bottomland hardwood forest
☐ headwater forest
☒ swamp forest
☐ wet flat
☐ pocosin
☐ pine savanna
☐ freshwater marsh
☐ bog/fen
☐ ephemeral wetland
☐ other

Water storage	<u>4</u>	X	4	=	<u>16</u>	Total Score <u>51</u>
Bank/Shoreline stabilization	<u>0</u>	X	4	=	<u>0</u>	
Pollutant removal	<u>4</u>	X	5	=	<u>20</u>	
Wildlife habitat	<u>4</u>	X	2	=	<u>8</u>	
Aquatic life value	<u>1</u>	X	4	=	<u>4</u>	
Recreation/Education	<u>3</u>	X	1	=	<u>3</u>	

NC 111
Wayne County
Replace Bridge No. 42 over Neuse River Overflow
Federal-Aid Project No. BRSTP-111(5)
State Project No. 8.1331701
T.I.P. No. B-3711

ADDENDUM TO
CATEGORICAL EXCLUSION
UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
AND
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

APPROVED:

10/24/02
DATE

Stacy B. Harris
Gregory J. Thorpe, Phd., Environmental Management Director
Project Development and Environmental
Analysis Branch, NCDOT

10/28/02
DATE

Ronald L. Graf
for Nicholas L. Graf, P.E.
Division Administrator, FHWA

NC 111

Wayne County

Replace Bridge No. 42 over Neuse River Overflow

Federal-Aid Project No. BRSTP-111(5)


State Project No. 8.1331701

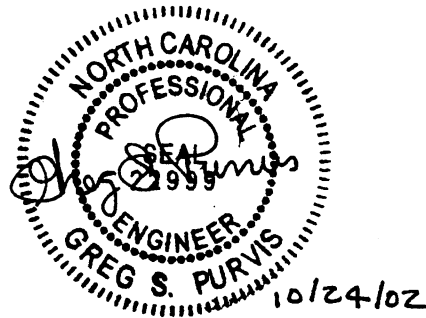
T.I.P. No. B-3711

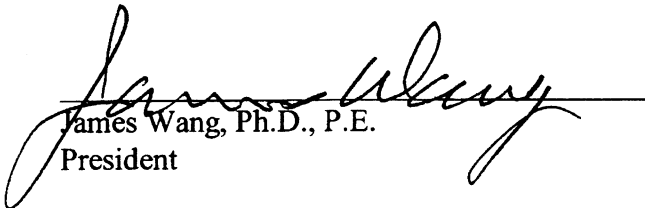
ADDENDUM TO
CATEGORICAL EXCLUSION

October 2002

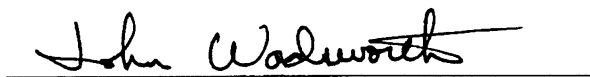
Document Prepared by:
Wang Engineering Company, Inc.


Greg S. Purvis, P.E.
Project Manager




James Wang, Ph.D., P.E.
President

For the North Carolina Department of Transportation


John Wadsworth, P.E.
Project Manager
Consultant Engineering Unit

**NC 111
Wayne County
Replace Bridge No. 42 Over Neuse River Overflow
Federal-Aid Project No. BRSTP-111(5)
State Project No. 8.1331701
T.I.P. No. B-3711**

I. BACKGROUND

A Categorical Exclusion for the subject project was approved December 3, 2001. The recommended alternate was to replace Bridge No. 42 in its existing location as shown by Alternate A in Figure 2. During construction, traffic would be maintained by a temporary on-site detour. The original preliminary hydraulics study recommended using a 60 in. (1500 mm) corrugated metal pipe. The temporary detour structure was later revised to a temporary bridge approximately 305 feet (91.5 meters) in length, located east of the existing bridge. Subsequent to that time more detailed studies have determined that the temporary detour bridge should be approximately 110 feet (33 meters) in length. The revised recommended alternate, Alternative A, is described below.

II. SUMMARY OF ENVIRONMENTAL COMMITMENTS

Mitigation shall be provided for any unavoidable wetland losses.

III. DISCUSSION

Two build alternatives were studied for this project: Alternatives A and B. Both alternatives involved replacement of the bridge at its existing location. Alternative A included a on-site detour to the east. Alternative B included an off-site detour.

Alternate A (Preferred) replaces the bridge at the existing location. During construction, traffic would be maintained by a temporary on-site detour. The temporary detour structure will be a temporary bridge approximately 110 feet (33 meters) in length, located east of the existing bridge. The length of approach work will be approximately 475 feet (142.5 meters) on the south side of the bridge and approximately 487 feet (146.1 meters) on the north side of the bridge.

Alternate B replaces the bridge at the existing location. During construction, traffic would be maintained by an off-site detour route along SR 1730, SR 1731, and NC 55 that is approximately ten miles (16 kilometers [km]) in length. The length of approach work will be approximately 399 feet (119.7 meters) on the south side of the bridge and approximately 398 feet (119.4 meters) on the north side of the bridge. The estimated cost for Alternative A was revised to reflect the changes since the original Categorical Exclusion.

characteristic of jurisdictional streams. The areas of impacted wetlands within the 100-foot (30 meters) right-of-way are shown in Table 2.

TABLE 2		
PROJECTED WETLAND IMPACTS		
Jurisdictional Type	Alternate A (Preferred)	Alternate B
Wetland	0.14 (0.06)	0.05 (0.02)

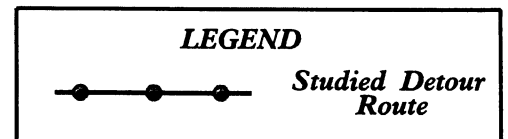
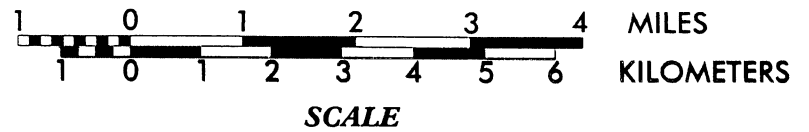
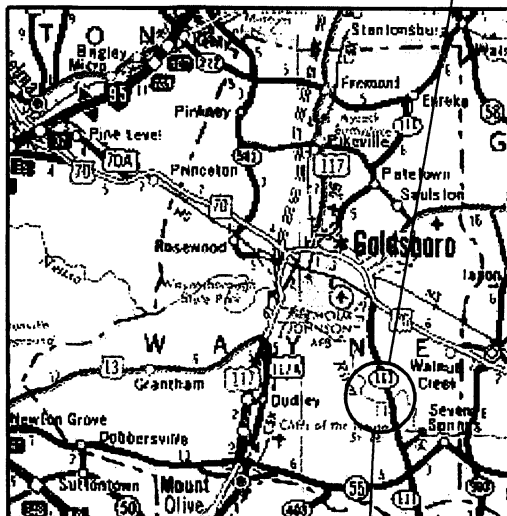
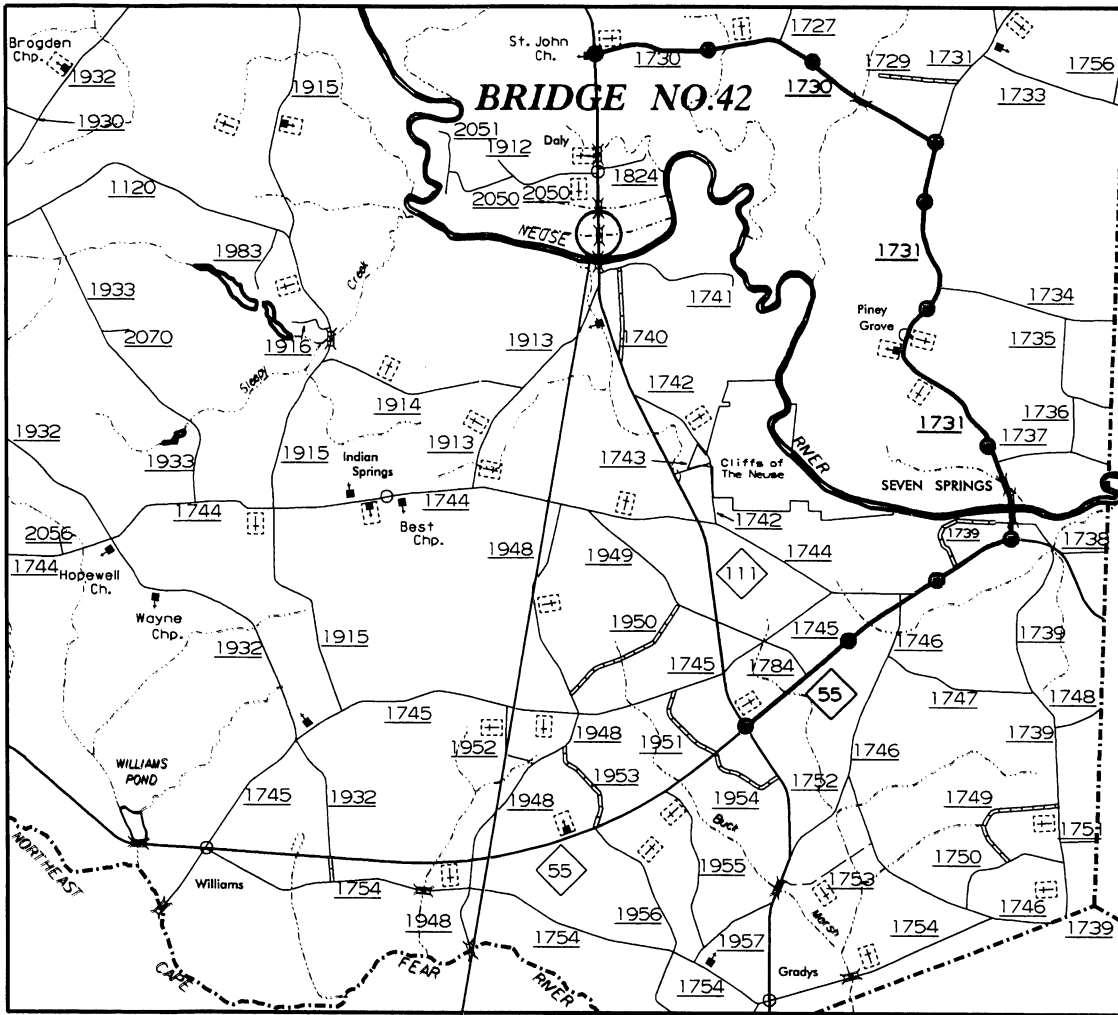
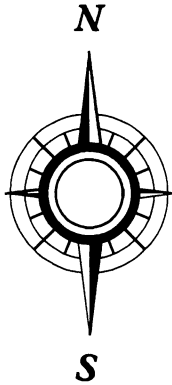
Areas are depicted in acre (hectare).

Permanent impacts to vegetated wetlands for both alternatives will consist of narrow strips adjacent to the existing bridge for both alternatives. However, a larger amount of impacts are associated with Alternate A (0.14 acre [0.06 hectare]) than with Alternate B (0.05 acre [0.02 hectare]). Upon completion of construction, temporary impacts associated with construction activities and the temporary alignment are expected to be restored to pre-project conditions.

In accordance with the provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344), a permit will be required from the Corps of Engineers for the discharge of dredged or fill material into "Waters of the United States."

A 401 Water Quality Certification, administered through the N.C. Department of Environment, Health and Natural Resources, will also be required. This certificate is issued for any activity which may result in a discharge into waters for which a federal permit is required.

This project is expected to have an overall positive impact. Replacement of an inadequate bridge will result in safer traffic operations.



	<p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS BRANCH</p>
<p>WAYNE COUNTY</p> <p>BRIDGE NO. 42 ON NC 111 OVER NEUSE RIVER OVERFLOW</p> <p>TIP NO. B-3711</p>	
<p>VICINITY MAP</p>	<p>FIGURE 1</p>

**BEGIN ALTERNATE A
(PREFERRED)**

**ALTERNATE A
(PREFERRED)**

NC III

NC III

**BEGIN DETOUR
BRIDGE**

**END DETOUR
BRIDGE**



**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH**

**WAYNE COUNTY
ALTERNATE A (PREFERRED)
BRIDGE NO. 42 ON NC III
OVER NEUSE RIVER OVERFLOW
TIP NO. B-3711**

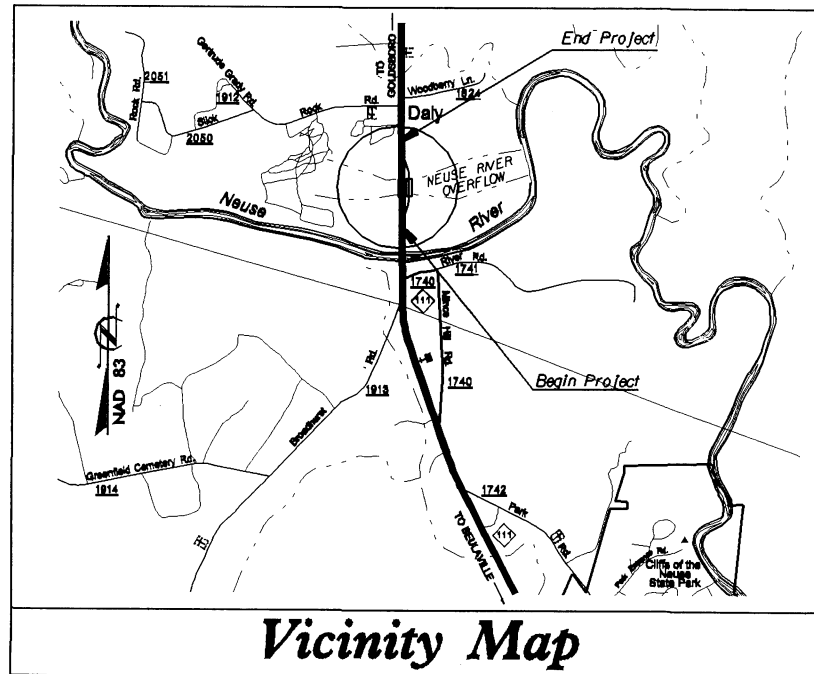
**1" = 100'
1 cm = 6 m**

FIGURE 2

09/08/99

CONTRACT: C201123 TIP PROJECT: B-3711

See Sheet 1-A For Index of Sheets



Vicinity Map

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

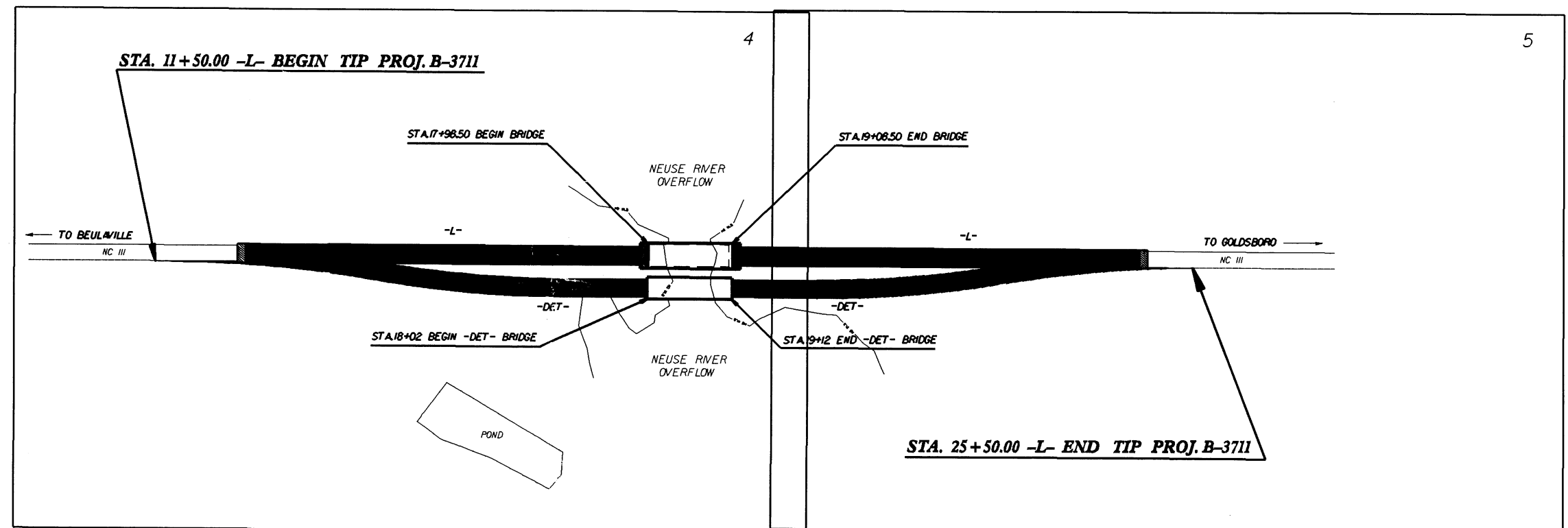
WAYNE COUNTY

LOCATION: BRIDGE NO. 42 OVER NEUSE RIVER OVERFLOW
ON NC 111

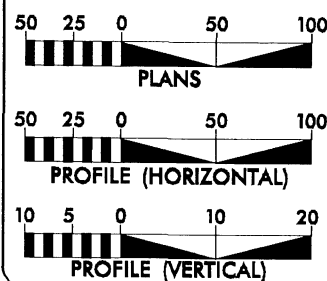
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURES



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3711	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33251.1.1	BRSTP-111(5)	PE	
33251.2.2	BRSTP-111(9)	CONST.	
33251.3.1	BRSTP-111(5)	RW & UTIL	



GRAPHIC SCALES



DESIGN DATA

ADT 2003 = 6,742
ADT 2025 = 10,500
DHV = 10 %
D = 60 %
T = 4 % *
V = 60 MPH
* TTST 1% DUAL 3%
FUNC. CLASS
RURAL MAJOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3711 = 0.244 MI.
LENGTH STRUCTURE TIP PROJECT B-3711 = 0.021 MI.
TOTAL LENGTH STATE TIP PROJECT B-3711 = 0.265 MI.

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., NC, 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 29, 2003

LETTING DATE:
DECEMBER 21, 2004

G. E. BREW, PE
PROJECT ENGINEER

W. T. BEST
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.
ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR
DATE

02-APR-2004 13:31
R:\proj\03711\dwg\tsd\gon
wasmith At 02/23/03

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement	---
Curb	---
Prop. Slope Stakes Cut	---C---
Prop. Slope Stakes Fill	---F---
Prop. Woven Wire Fence	---○---
Prop. Chain Link Fence	---□---
Prop. Barbed Wire Fence	---◇---
Prop. Wheelchair Ramp	---(WCR)---
Curb Cut for Future Wheelchair Ramp	---(CCFR)---
Exist. Guardrail	---+---
Prop. Guardrail	---+---
Equality Symbol	⊕
Pavement Removal	XXXX

RIGHT OF WAY

Baseline Control Point	◆
Existing Right of Way Marker	△
Exist. Right of Way Line w/Marker	△
Prop. Right of Way Line with Proposed	---
R/W Marker (Iron Pin & Cap)	▲
Prop. Right of Way Line with Proposed	---
(Concrete or Granite) R/W Marker	⊙
Exist. Control of Access Line	⊙
Prop. Control of Access Line	⊙
Exist. Easement Line	---E---
Prop. Temp. Construction Easement Line	---E---
Prop. Temp. Drainage Easement Line	---TDE---
Prop. Perm. Drainage Easement Line	---PDE---

HYDROLOGY

Stream or Body of Water	~~~~~
River Basin Buffer	---BZ---
Flow Arrow	→
Disappearing Stream	→
Spring	○
Swamp Marsh	~
Shoreline	---
Falls, Rapids	+
Prop Lateral, Tail, Head Ditches	→

STRUCTURES

MAJOR	
Bridge, Tunnel, or Box Culvert	---CONC---
Bridge Wing Wall, Head Wall and End Wall	---CONC WW---

MINOR

Head & End Wall	---CONC HW---
Pipe Culvert	---=---
Footbridge	--->---
Drainage Boxes	---CB---
Paved Ditch Gutter	---

UTILITIES

Exist. Pole	•
Exist. Power Pole	○
Prop. Power Pole	○
Exist. Telephone Pole	○
Prop. Telephone Pole	○
Exist. Joint Use Pole	○
Prop. Joint Use Pole	○
Telephone Pedestal	⊕
UG Telephone Cable Hand Hold	⊕
Cable TV Pedestal	⊕
UG TV Cable Hand Hold	⊕
UG Power Cable Hand Hold	⊕
Hydrant	⊕
Satellite Dish	⊕
Exist. Water Valve	⊕
Sewer Clean Out	⊕
Power Manhole	⊕
Telephone Booth	⊕
Cellular Telephone Tower	⊕
Water Manhole	⊕
Light Pole	⊕
H-Frame Pole	⊕
Power Line Tower	⊕
Pole with Base	⊕
Gas Valve	⊕
Gas Meter	⊕
Telephone Manhole	⊕
Power Transformer	⊕
Sanitary Sewer Manhole	⊕
Storm Sewer Manhole	⊕
Tank; Water, Gas, Oil	⊕
Water Tank With Legs	⊕
Traffic Signal Junction Box	⊕
Fiber Optic Splice Box	⊕
Television or Radio Tower	⊕
Utility Power Line Connects to Traffic	⊕
Signal Lines Cut Into the Pavement	⊕

Recorded Water Line	---W---
Designated Water Line (S.U.E.*)	---W---
Sanitary Sewer	---SS---
Recorded Sanitary Sewer Force Main	---FSS---
Designated Sanitary Sewer Force Main(S.U.E.*)	---FSS---
Recorded Gas Line	---G---
Designated Gas Line (S.U.E.*)	---G---
Storm Sewer	---S---
Recorded Power Line	---P---
Designated Power Line (S.U.E.*)	---P---
Recorded Telephone Cable	---T---
Designated Telephone Cable (S.U.E.*)	---T---
Recorded U/G Telephone Conduit	---TC---
Designated U/G Telephone Conduit (S.U.E.*)	---TC---
Unknown Utility (S.U.E.*)	---?UTL---
Recorded Television Cable	---TV---
Designated Television Cable (S.U.E.*)	---TV---
Recorded Fiber Optics Cable	---FO---
Designated Fiber Optics Cable (S.U.E.*)	---FO---
Exist. Water Meter	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to U/G Record	ATTUR
End of Information	E.O.I.

BOUNDARIES & PROPERTIES

State Line	---
County Line	---
Township Line	---
City Line	---
Reservation Line	---
Property Line	---
Property Line Symbol	⊕
Exist. Iron Pin	⊕
Property Corner	⊕
Property Monument	⊕
Property Number	⊕
Parcel Number	⊕
Fence Line	---X---
Existing Wetland Boundaries	---WW & ISBW---
High Quality Wetland Boundary	---HQ WLB---
Medium Quality Wetland Boundaries	---MQ WLB---
Low Quality Wetland Boundaries	---LQ WLB---
Proposed Wetland Boundaries	---WLB---
Existing Endangered Animal Boundaries	---EAB---
Existing Endangered Plant Boundaries	---EPB---

BUILDINGS & OTHER CULTURE

Buildings	---
Foundations	---
Area Outline	---
Gate	---
Gas Pump Vent or U/G Tank Cap	---
Church	---
School	---
Park	---
Cemetery	---
Dam	---
Sign	---
Well	---
Small Mine	---
Swimming Pool	---

TOPOGRAPHY

Loose Surface	---
Hard Surface	---
Change in Road Surface	---
Curb	---
Right of Way Symbol	R/W
Guard Post	⊕ GP
Paved Walk	---
Bridge	---
Box Culvert or Tunnel	---
Ferry	---
Culvert	---
Footbridge	---
Trail, Footpath	---
Light House	---

VEGETATION

Single Tree	---
Single Shrub	---
Hedge	---
Woods Line	---
Orchard	---
Vineyard	---

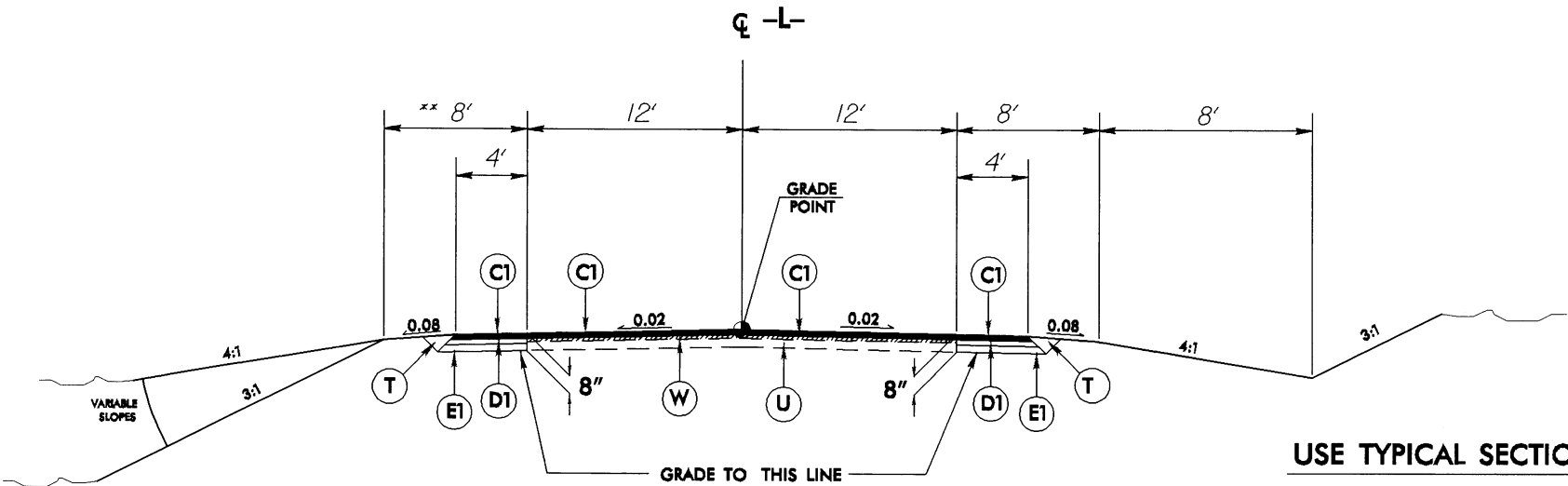
RAILROADS

Standard Gauge	---
RR Signal Milepost	---
Switch	---

PROJECT REFERENCE NO.	SHEET NO.
B-3711	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 119.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.25" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE.
P1	PRIME COAT AT RATE OF .35 GAL. PER SQ. YD.
R1	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

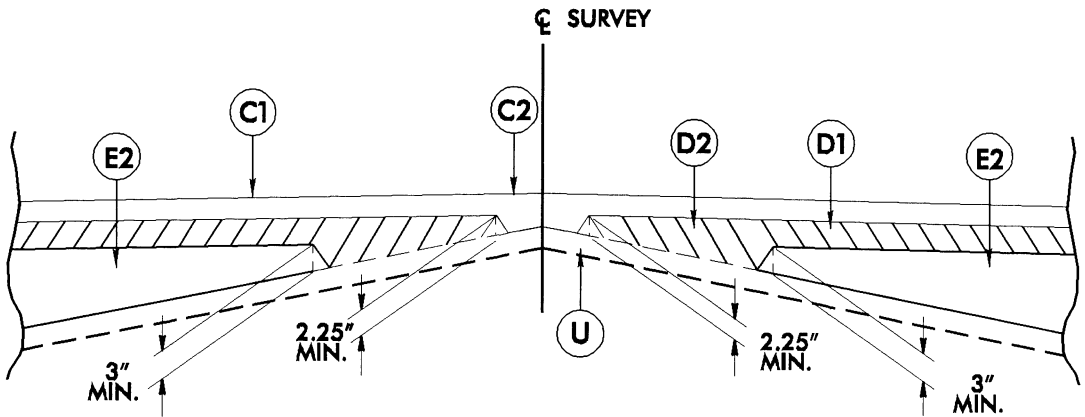
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



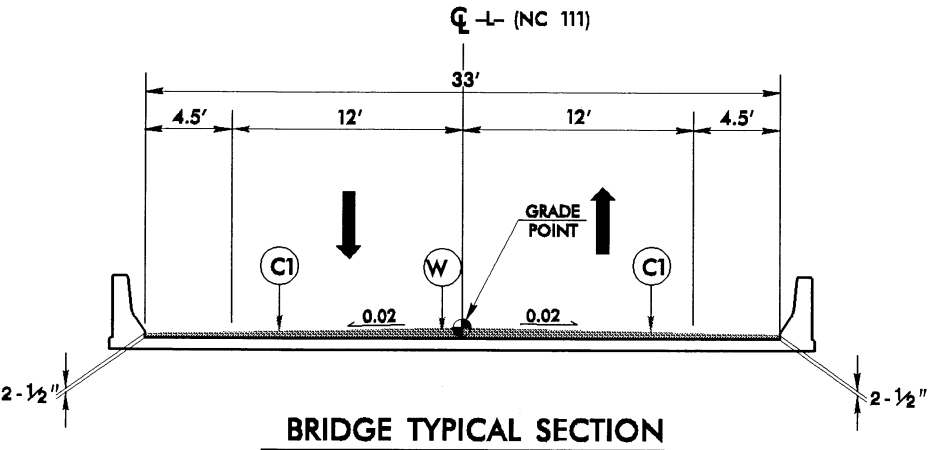
USE TYPICAL SECTION NO. 1

-L- FROM STA.13+00.00 TO STA.14+35.00
-L- FROM STA.21+60.00 TO STA.24+50.00

TYPICAL SECTION NO. 1



Detail Showing Method of Wedging



USE BRIDGE TYPICAL SECTION

-L- STA.17+98.50 TO STA.19+08.50

BRIDGE TYPICAL SECTION

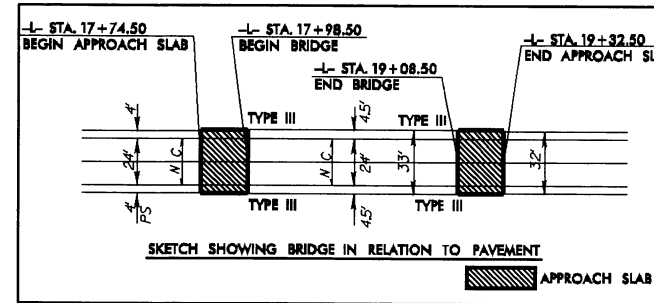
8/17/99

REVISIONS

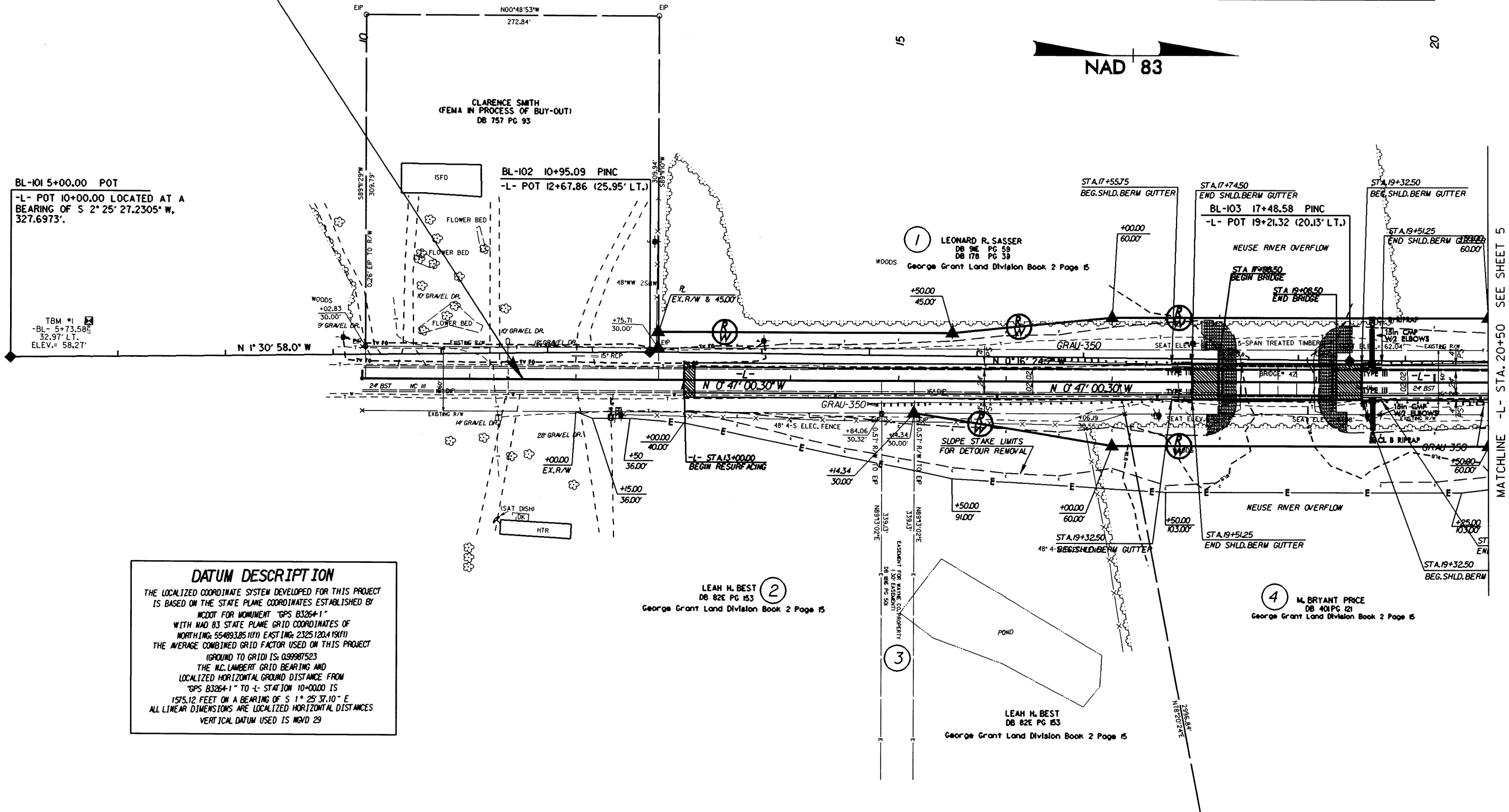
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PROJECT REFERENCE NO.	SHEET NO.
B-3711	4
HW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-L- STA.11+50.00 BEGIN STATE PROJECT NO.B-3711
-L- STA.11+50.00 BEGIN F.A.PROJECT BRSTP-111(5)



SEE SHEET 6 FOR -L- PROFILE



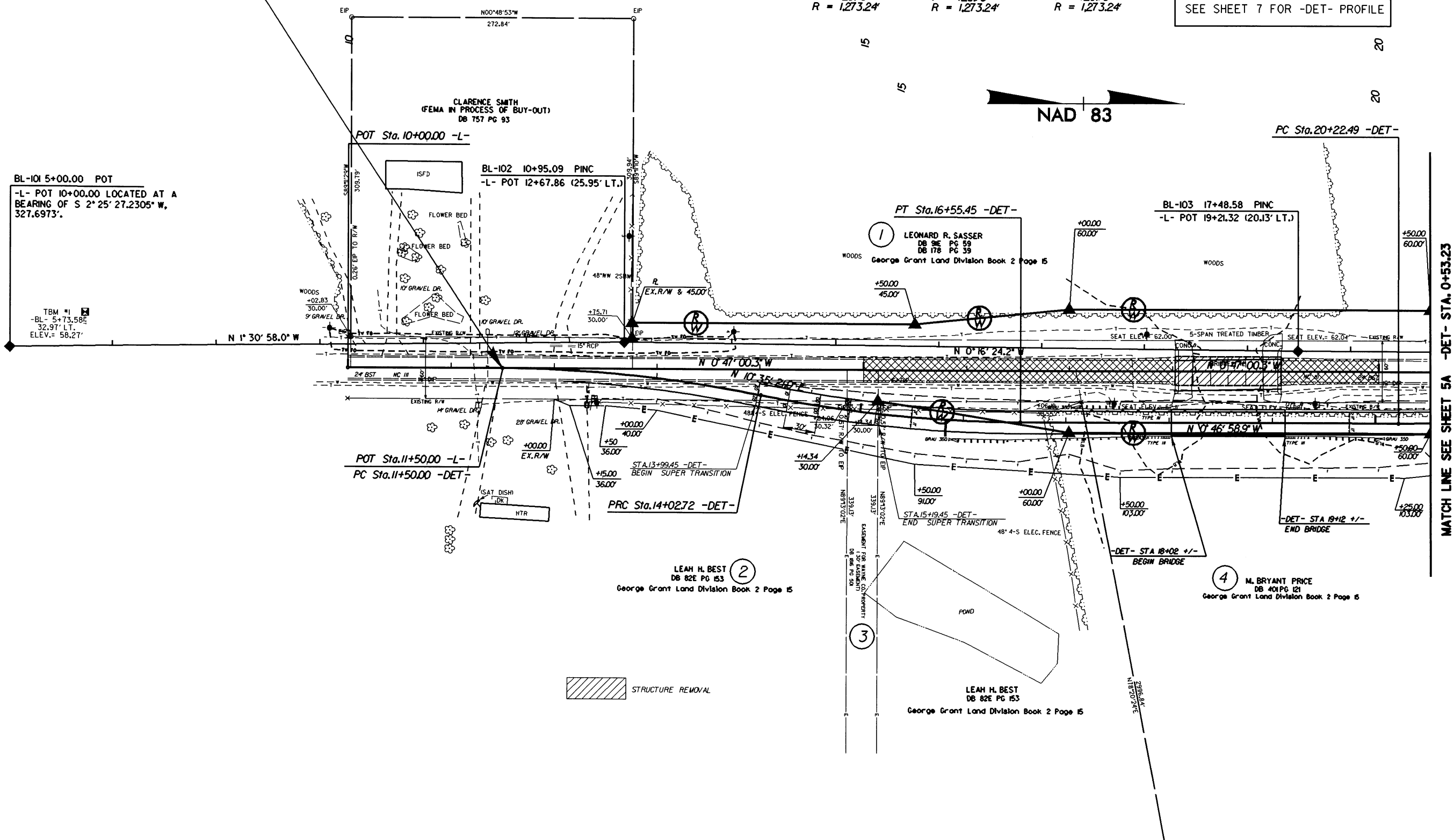
DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDDOT FOR MONUMENT "GPS B3264-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 55483.85 (11) EASTING: 2325120.419 (11) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987523 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS B3264-1" TO -L- STATION 10+00.00 IS 1575.12 FEET ON A BEARING OF S 1° 25' 37.10" E ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

MATCHLINE -L- STA. 20+50 SEE SHEET 5

-L- STA.11 + 50.00 BEGIN STATE PROJECT NO.B-3711
-L- STA.11 + 50.00 BEGIN F.A.PROJECT BRSTP-111(5)

-DET-		
PI Sta 12+76.78	PI Sta 15+29.51	PI Sta 21+49.27
$\Delta = 11^{\circ} 22' 20.6" (RT)$	$\Delta = 11^{\circ} 22' 20.6" (LT)$	$\Delta = 11^{\circ} 22' 22.4" (LT)$
$D = 4^{\circ} 30' 00.0"$	$D = 4^{\circ} 30' 00.0"$	$D = 4^{\circ} 30' 00.0"$
$L = 252.72'$	$L = 252.72'$	$L = 252.73'$
$T = 126.78'$	$T = 126.78'$	$T = 126.78'$
$R = 1,273.24'$	$R = 1,273.24'$	$R = 1,273.24'$

SEE SHEET 7 FOR -DET- PROFILE



MATCH LINE SEE SHEET 5A -DET- STA. 0+53.23

3/17/99

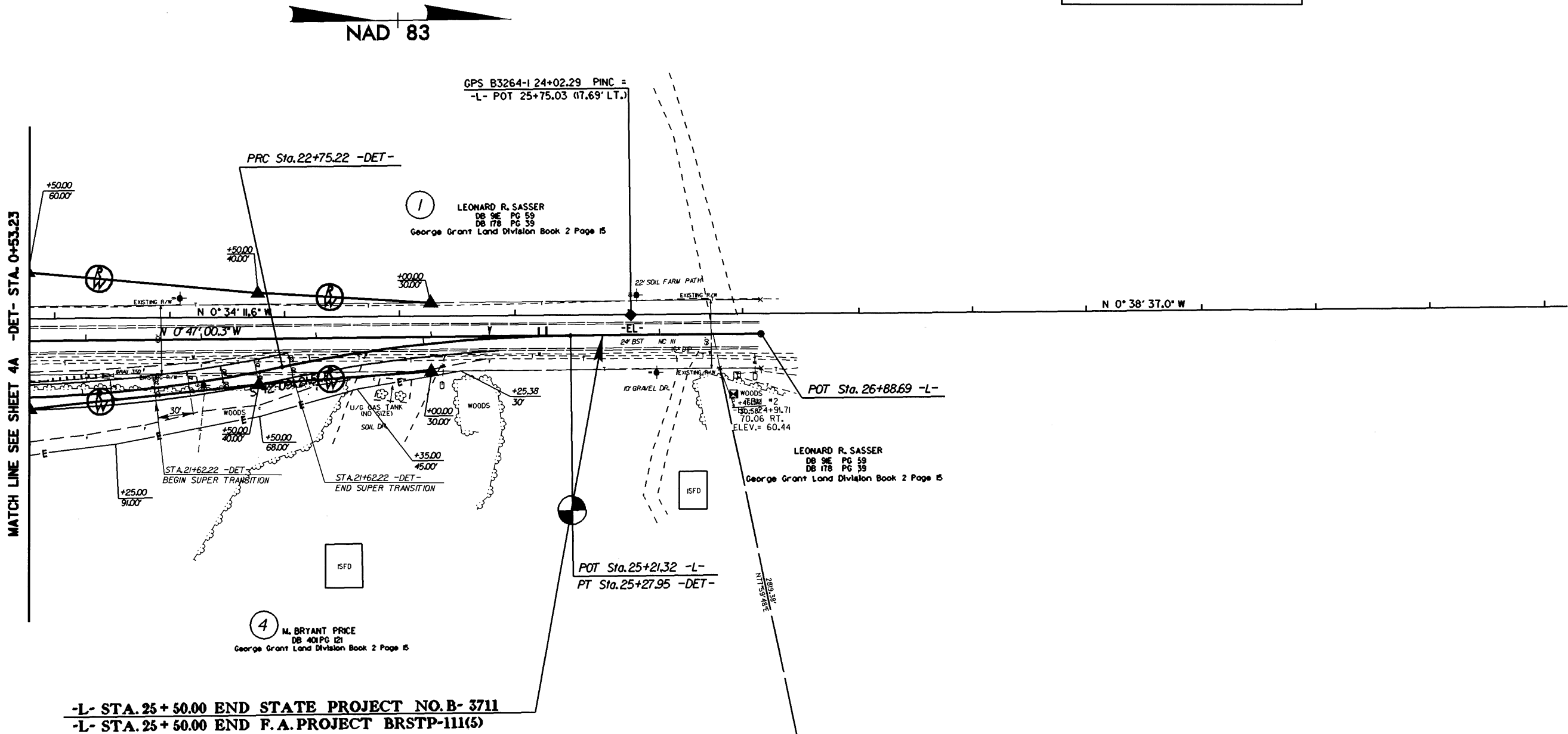
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PROJECT REFERENCE NO.	SHEET NO.
B-3711	5A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-DET-	
PI Sta 21+49.27	PI Sta 24+02.00
$\Delta = 11^{\circ} 22' 22.4" (LT)$	$\Delta = 11^{\circ} 22' 21.9" (RT)$
$D = 4' 30" 00.0"$	$D = 4' 30" 00.0"$
$L = 252.73'$	$L = 252.73'$
$T = 126.78'$	$T = 126.78'$
$R = 1,273.24'$	$R = 1,273.24'$

25 25

SEE SHEET 7 FOR -DET- PROFILE



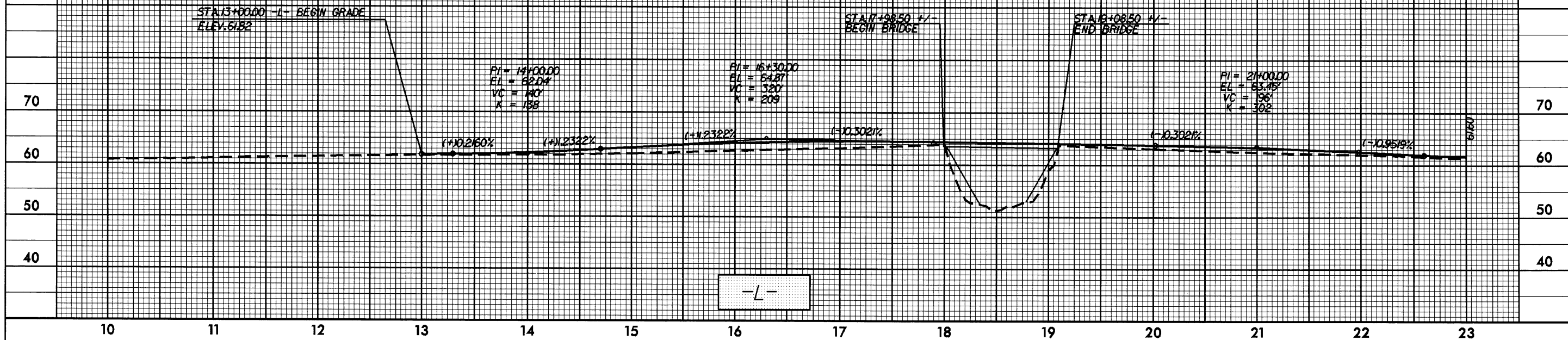
5/28/99

PROJECT REFERENCE NO.		SHEET NO.	
B-3711		6	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

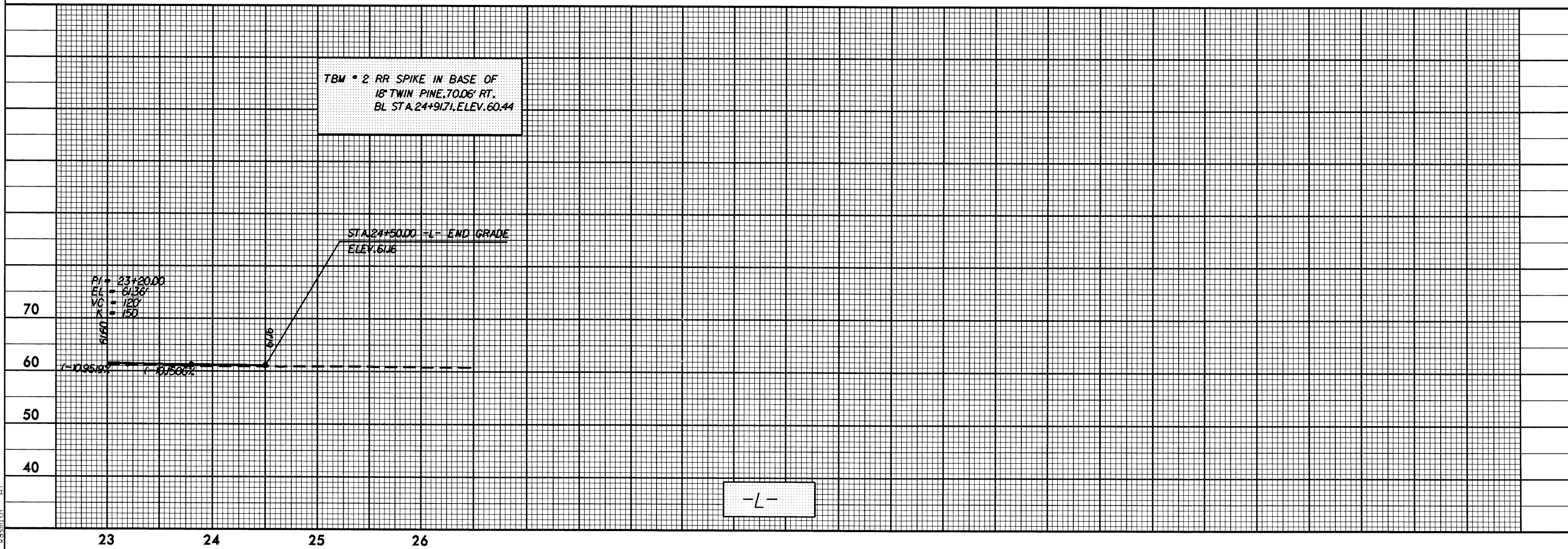
STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 27900 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 60.5 FT
BASE DISCHARGE	= 33000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 61.7 FT
OVERTOPPING DISCHARGE	= 33000 CFS
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING ELEVATION	= 61.6 FT

SEE SHEETS PLAN SHEETS 4 & 5 FOR
-L- ALIGNMENT



TBM • 2 RR SPIKE IN BASE OF
18' TWIN PINE, 70.06' RT.
BL STA 24+91.71, ELEV. 60.44



5/28/99

PROJECT REFERENCE NO. B-3711		SHEET NO. 7
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

STRUCTURE HYDRAULIC DATA	
DESIGN DISCHARGE	= 15000 CFS
DESIGN FREQUENCY	= 5 YRS
DESIGN HW ELEVATION	= 53.9 FT
BASE DISCHARGE	= 0 CFS
BASE FREQUENCY	= 0 YRS
BASE HW ELEVATION	= 0 FT
OVERTOPPING DISCHARGE	= 0 CFS
OVERTOPPING FREQUENCY	= 0 YRS
OVERTOPPING ELEVATION	= 0 FT

STA-DET- 14+0.63 BEGIN GRADE
ELEV. 61.22

70

60

50

40

12

13

14

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16

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22

23

24

25

-DET-

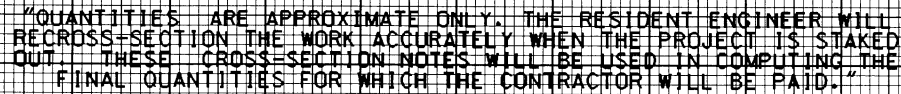
STA-22+80.06 -DET- END GRADE
ELEV. 60.93

70

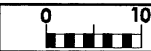
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50

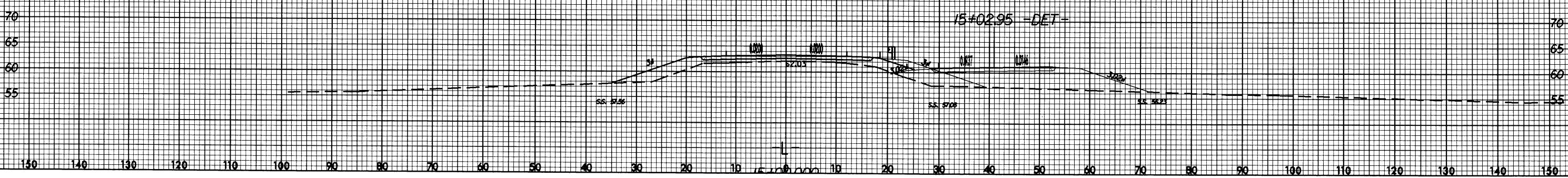
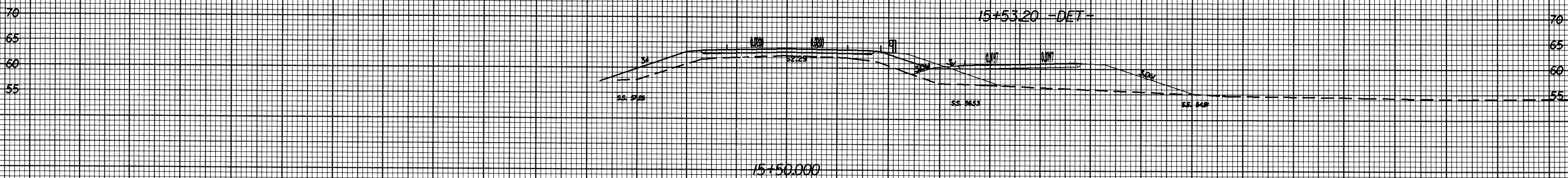
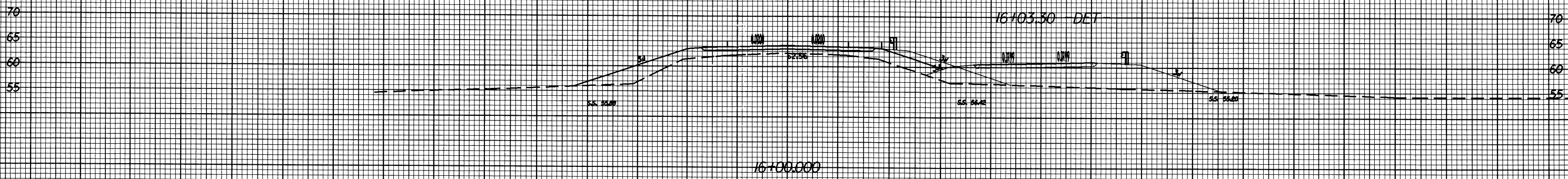
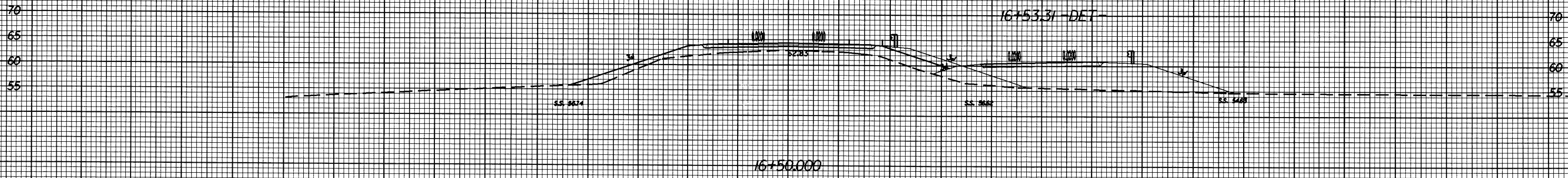
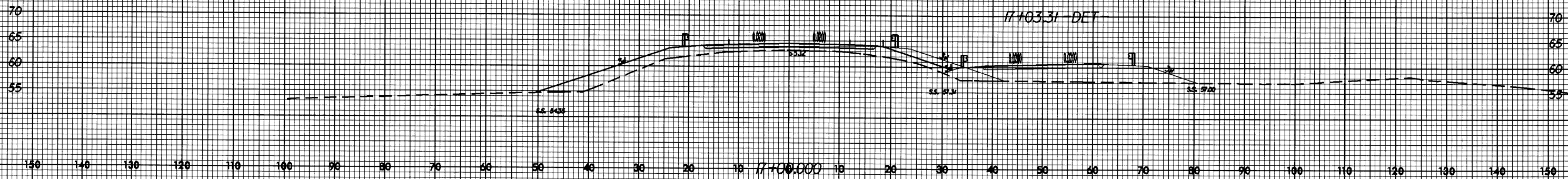
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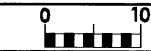
8/23/99



PROJ. REFERENCE NO.	SHEET NO.
B-3711	X-2

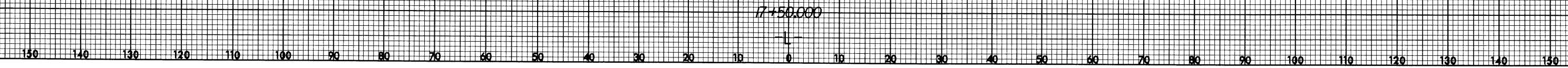
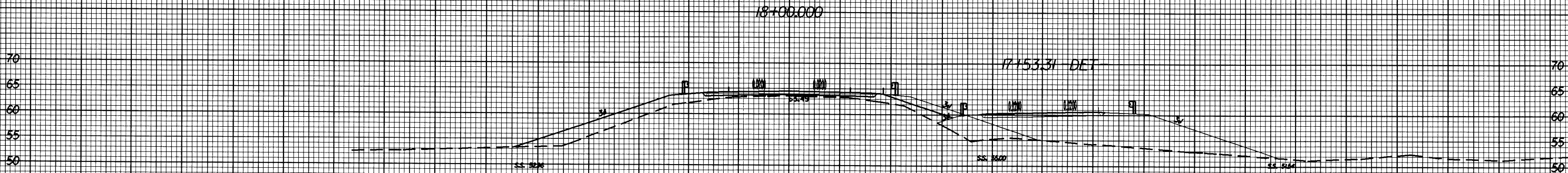
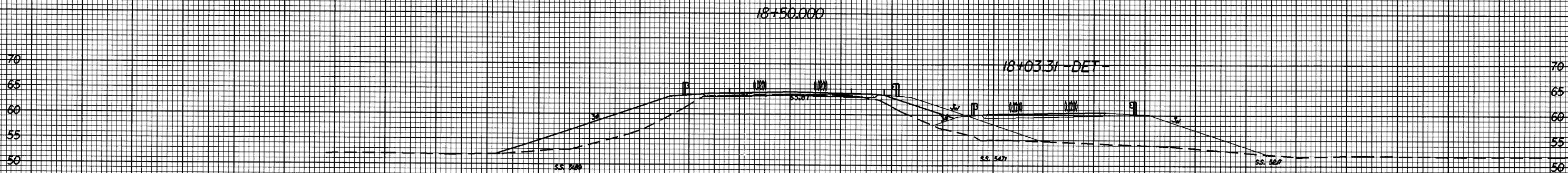
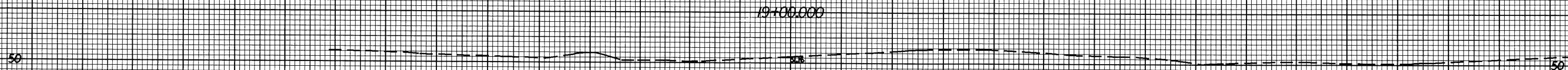
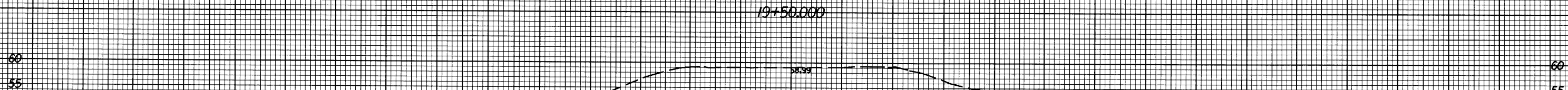
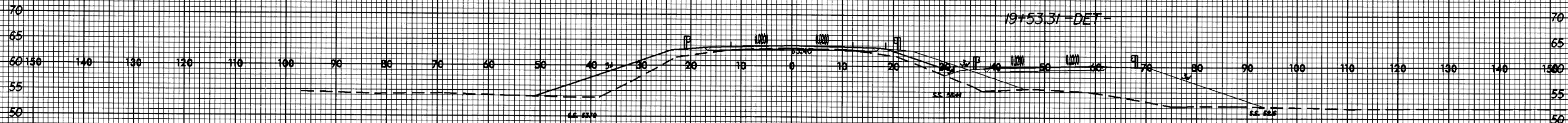


8/23/99



PROJ. REFERENCE NO.
B-3711

SHEET NO.
X-3

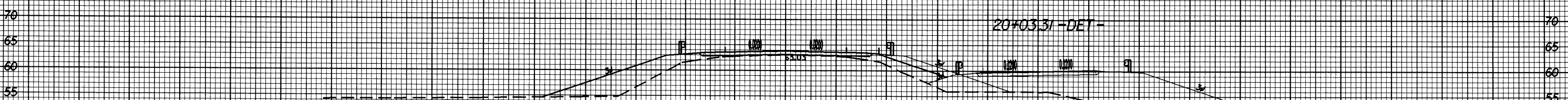
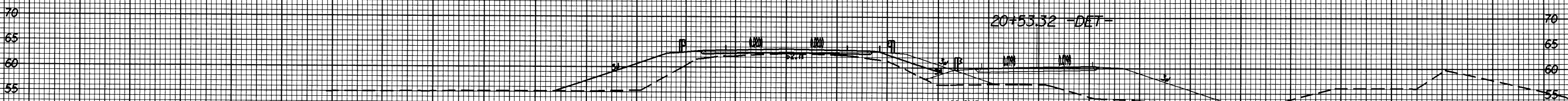
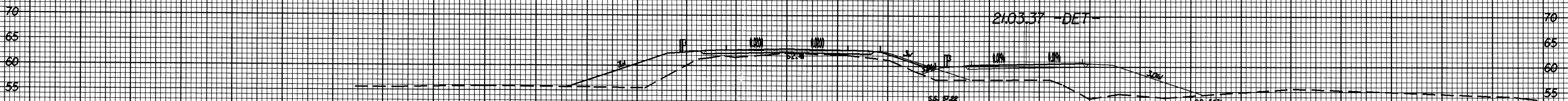
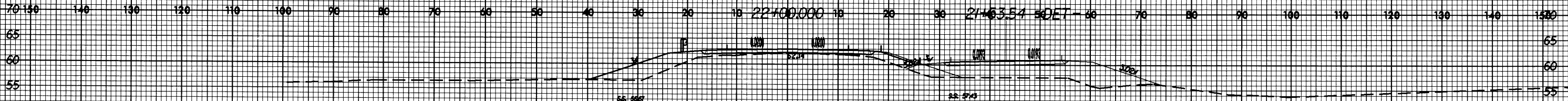
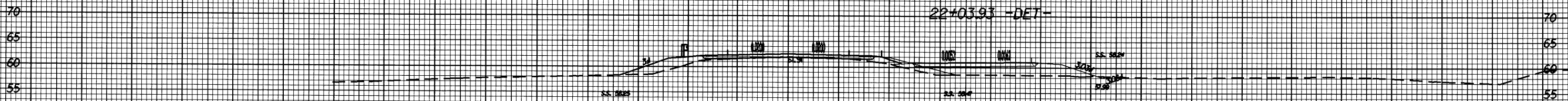


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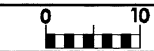


PROJ. REFERENCE NO.
B-3711

SHEET NO.
X-4



8/23/99



PROJ. REFERENCE NO.
B-3711

SHEET NO.
X-5

